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# SOCIOECONOMIC LONGITUDINAL MONITORING PROJECT

First Year Progress Report

VOL. I — SUMMARY REPORT

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# **SOCIOECONOMIC LONGITUDINAL MONITORING PROJECT**

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**First Year Progress Report**

## **VOL. I — SUMMARY REPORT**

prepared for

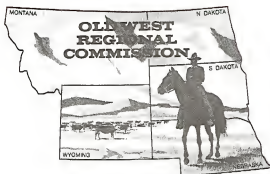
The Old West Regional Commission

by

The Center for Urban and Regional Analysis  
Institute for Policy Research  
University of Wyoming  
Laramie, Wyoming

April 1977

The Old West Regional Commission is a Federal-State partnership designed to solve regional economic problems and stimulate orderly economic growth in the states of Montana, Nebraska, North Dakota, South Dakota and Wyoming. Established in 1972 under the Public Works and Economic Development Act of 1965, it is one of seven identical Commissions throughout the country engaged in formulating and carrying out coordinated action plans for regional economic development.



# STUDY COORDINATOR FOR THE OLD WEST REGIONAL COMMISSION:

Jeannette Studer

## COMMISSION MEMBERS

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*Alternate:* Theodore R. Muenster

Gov. Arthur A. Link of North Dakota

*Alternate:* Woody Gagnon

## STUDY DIRECTORS:

Gary L. Watts

James G. Thompson

Audie L. Blevins, Jr.

## RESEARCH TEAM:

Gene S. Adams

Judith M. Curtis

Sheila M. Johnson

Robert L. Kimble

Terrence A. McAuliffe

George A. Piccagli

## COMMISSION OFFICES

1730 K Street, N.W.

Suite 426

Washington, D.C. 20006

202/634-3907

201 Main Street

Suite D

Rapid City, South Dakota 57701

605/348-6310

228 Hedden-Empire Building

Billings, Montana 59101

406/657-6665

FTS 585-6665

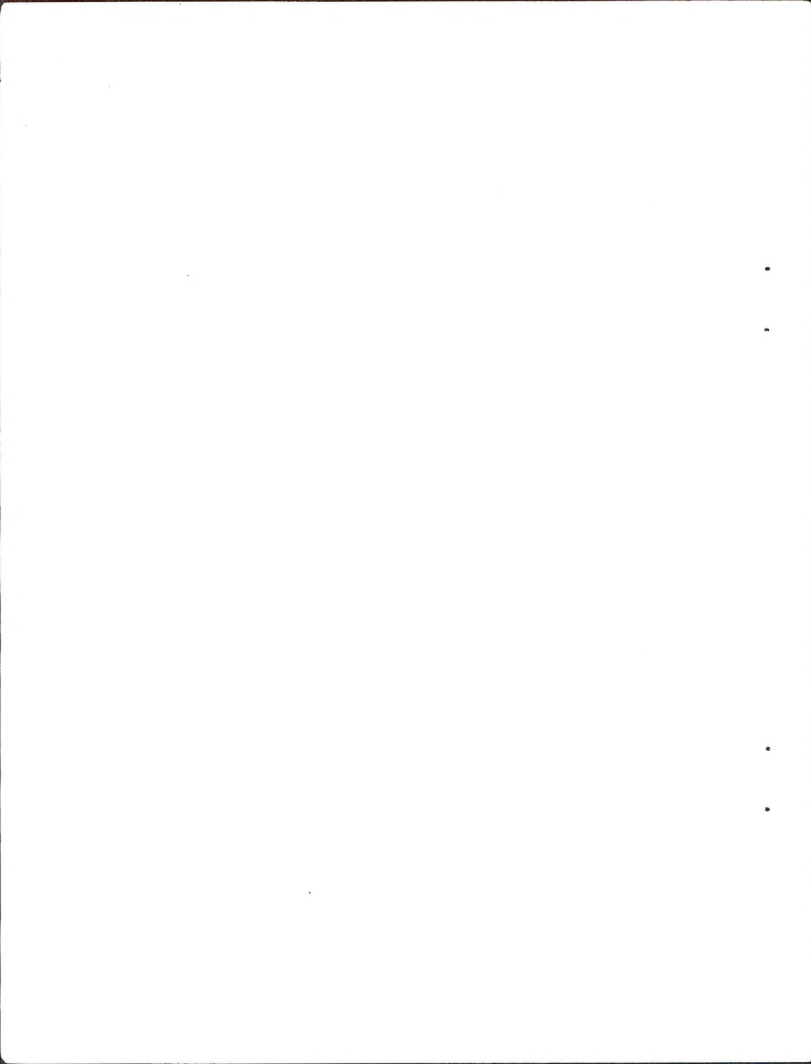
## FOREWORD

This is a summary of the first year of research into comparative socioeconomic factors among two Old West counties heavily impacted by energy development and two counties which have been relatively untouched to date by energy events in the Region. Readers are reminded this is only an interim report, covering the first year of investigation. A final report will be issued at the end of the project's second year.

The Commission is grateful to the University of Wyoming's Center for Urban and Regional Analysis for its work thus far in the project, and we are especially indebted to the local officials who provided the input for the findings contained in these reports.

For convenience of the reader, the report is divided into five volumes. Volume I is a summary of the first year of research. Volume II consists of a profile of McLean County, North Dakota, one of the impacted communities; Volume III contains a profile of Platte County, Wyoming, the other impacted community. Volume IV covers a profile of Wheatland County, Montana, and Volume V contains a profile of Kimball County, Nebraska; they were the non-impacted communities investigated.

Warren C. Wood  
*Federal Cochairman*



## FIRST YEAR PROGRESS REPORT OF A LONGITUDINAL SOCIOECONOMIC MONITORING STUDY

The LONGITUDINAL SOCIOECONOMIC MONITORING STUDY is being conducted by the Old West Regional Commission to compare actual socioeconomic changes which accompany the construction of coal-fired electric power plants with those projected in impact statements. Emphasis of the study is on collecting primary data to enable researchers to more accurately estimate social and economic changes which accompany energy development. Four surveys were conducted in the first year.

- A Household Survey was conducted in three of the study counties. In each case, a sample of county residents received mailed questionnaires requesting information on household and labor force characteristics, satisfaction with public services and attitudes towards crime and energy development.
- A Business Survey was also undertaken in the four study counties. All business firms were asked to complete questionnaires mailed to them. Returned questionnaires provided information on employment, wages and annual sales by individual establishments.
- A Project Survey was completed at the two construction sites. During working hours, employees received questionnaires dealing with length of residence in the area, type of housing occupied and commuting distance from home to work.
- A Worker Turnover Survey was implemented at the UPA/CPA construction project in North Dakota. With the assistance of the North Dakota State Building and Trade Council, a survey was designed to be completed by workers leaving the project before their particular task was completed to try to better understand reasons for workers leaving the project. Results of this survey are not complete and so are not reported in this interim report.

Results of the study are summarized in five documents.

### I. FIRST YEAR PROGRESS REPORT OF A SOCIOECONOMIC LONGITUDINAL MONITORING STUDY: SUMMARY REPORT

This volume compares socioeconomic changes occurring in McLean County, N.D. and Platte County, WY. with those predicted for each county, with each other and with changes in two non-impacted counties, Kimball County, NE. and Wheatland County, MT. After describing the need for a longitudinal monitoring study, this report outlines socioeconomic conditions in the four counties before energy development and analyzes the changes which have since occurred in the four study counties. The purpose of the analysis is to estimate types and magnitudes of socioeconomic changes which occur under the condition of large scale energy development.

II. FIRST YEAR PROGRESS REPORT OF A SOCIOECONOMIC PROFILE OF MCLEAN COUNTY, NORTH DAKOTA

This volume analyzes the socioeconomic changes in McLean County which have accompanied construction of the Coal Creek Station. Of particular importance are data describing types of changes occurring in the early stages of construction and analyses of deviations from impact projections.

III. FIRST YEAR PROGRESS REPORT OF A SOCIOECONOMIC PROFILE OF WHEATLAND COUNTY, MONTANA

To isolate socioeconomic changes due to energy development, a control county was matched with each impacted county; Wheatland serves as the control for McLean County. The social and economic changes occurring in a county with little population growth are summarized in this volume.

IV. FIRST YEAR PROGRESS REPORT OF A SOCIOECONOMIC PROFILE OF PLATTE COUNTY, WYOMING

This volume describes the socioeconomic changes in Platte County which have accompanied construction of the Laramie River Station. Significant in this volume are the descriptions of preconstruction preparations, changes in housing and employment in the year preceding construction and financing arrangements for public facilities made necessary, in part, by the Wyoming Industrial Siting Act.

V. FIRST YEAR PROGRESS REPORT OF A SOCIOECONOMIC PROFILE OF KIMBALL COUNTY, NEBRASKA

Like Wheatland, Kimball County is a control county, being matched with Platte County, Wyoming. This volume also analyzes social and economic changes in a county with little population growth.

Distribution of Publications:

The documents described above are available on request from:

Old West Regional Commission, 1730 "K" Street, N.W., Suite 426,  
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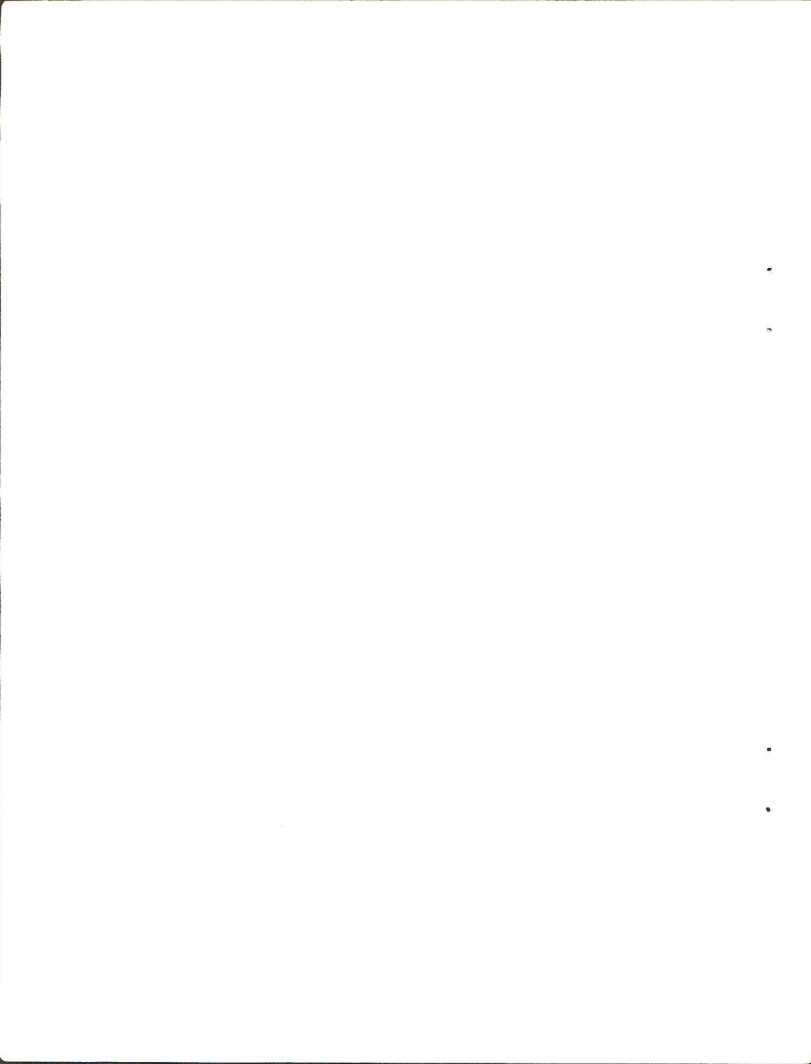


#### ACKNOWLEDGMENTS

Without the assistance of numerous local and state officials in the areas studied, this report could not have been completed. The individual county reports mention the persons and organizations who have been most helpful; their assistance in our research efforts is appreciated.

First drafts of the report became final manuscript through the efforts of Lois M. Berry, Janet F. Fedell, Florence A. Langdon, and Julie A. Novak.

Michael R. Board, Michael D. Marcus, and Annette F. Bergman provided editorial assistance. The authors extend their thanks to all these people.



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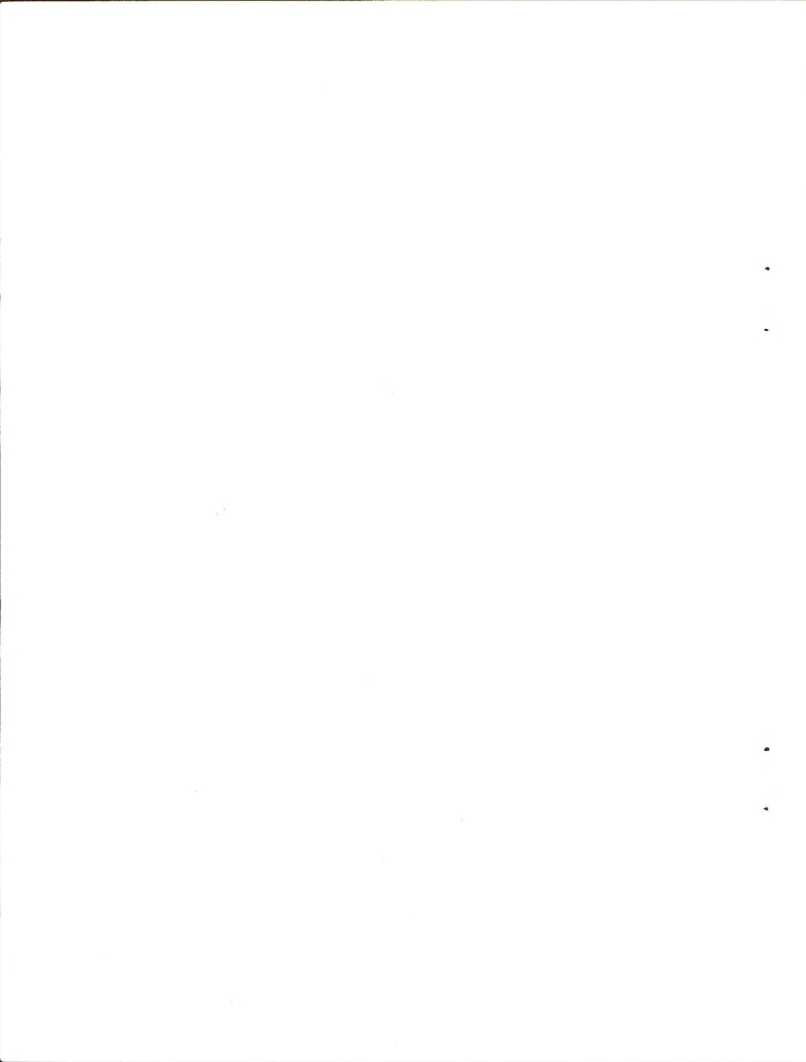


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## CHAPTER 1

### INTRODUCTION

#### 1.1 Background

Dwindling energy supplies in the United States have created new pressures for the development of mineral resources. In parts of the Old West Region (Nebraska, North Dakota, Montana, South Dakota, Wyoming) the development of coal by strip mining and the construction and operation of coal-fired generating plants is a major form of mineral development at this time. When developments of such magnitude occur in rural areas, the socioeconomic changes which occur are likely to be significant and disruptive of orderly growth.

In attempts to minimize the undesirable effects of social impact, various governmental and private organizations are sponsoring research aimed at projecting the changes which may occur in rural communities as a result of these developments. Accurate predictions allow residents to take steps to prevent, or at least reduce, deterioration in the local quality of life. For example, when future school enrollments are estimated, residents can choose to build schools which will accommodate the new students without an increase in average classroom size and a reduction in instructional quality. Although projection techniques have become more sophisticated, few researchers have compared actual socioeconomic changes which accompany energy development with projections.

To learn more about the dynamics of rapid population growth and its effects, the Old West Regional Commission authorized the University of Wyoming to undertake a longitudinal monitoring study beginning in late

1975. This document constitutes an interim report to the Old West Regional Commission summarizing the results of the first year of the monitoring effort. As we emphasize throughout the report, the results present herein are preliminary and subject to revision as the study proceeds.

## 1.2 Methodology

The basic design of this study is to monitor a number of social and economic variables in counties experiencing growth from large scale energy development. A number of data collection techniques were used during the first year's study effort. An extensive effort was made to identify relevant sources for secondary data and to make arrangements for periodic transfer of this data to the University of Wyoming. Five different types of surveys were used: a household survey in each county; a business survey in each county; construction worker surveys at each of the development sites; a worker turn-over survey; and a price monitoring survey. For the sake of brevity, the specific methodologies used for each survey are not described in this interim report. Standard techniques for sampling, pretesting, etc. were used as appropriate for each survey. Details of these methodologies will be presented in the final report for this project. Copies of the survey instruments used in the study can be obtained by writing directly to the authors at the University of Wyoming.

A variety of estimation procedures were used for variables such as employment and population. Where appropriate these techniques are spelled out in this report. Some techniques are not discussed in this report as they are undergoing change -- one of the goals of this study is to develop and refine such estimating procedures.

## CHAPTER 2

### SELECTION OF SITES

#### 2.1 Introduction

We addressed three basic questions in selecting sites to be monitored. First, how many sites should be monitored? Second, should the monitoring sites include only areas impacted by energy development, or should "control" sites without energy development also be included? Finally, what specific sites would be appropriate in light of the answers to the first two questions?

Based on budgetary limitations and staff availability at the University of Wyoming, we decided a total of four sites would be monitored. We also decided that it is important to monitor "control" counties in addition to impacted counties because there may be changes affecting the Old West region which are not directly attributable to energy development. For example, if crime rates are increasing in the region as a result of some general social phenomenon unrelated to energy development, then monitoring increases in crime rates in impacted areas could lead to the erroneous conclusion that energy development alone was responsible for increased criminal activities. By monitoring control counties without energy development activities, estimation of changes directly attributable to energy development is more feasible.

The process of selecting specific sites to be monitored required several months and many field trips. A description of the test (impacted) and control (nonimpacted) counties which were selected for the study follows.

## 2.2 Impacted Counties

Selection of the impacted areas for inclusion in the monitoring study was based upon several criteria, including the following.

1. The sites to be monitored should consist of large-scale energy developments in sparsely populated rural areas, since such situations are more likely to result in negative impacts than where development is small or located close to a metropolitan area.

2. The energy developments to be monitored should be either in the early stages of construction or not yet under construction so that socioeconomic changes could be traced from the start of construction to peak impact periods.

3. If possible, the area to be monitored should not be subjected to simultaneous developments, since it would be difficult to separate effects of one development from another.

After examining potential sites in the Old West region, we selected the two which most nearly met the above criteria. The first was the Laramie River Station coal-fired electrical generating facility, located approximately five miles northeast of Wheatland in Platte County, Wyoming. This plant is being built by the Missouri Basin Power Project (MBPP), an association of consumer-owned municipal electrical cooperatives. Plans call for the construction of three separate 500-megawatt generating units. Prior to construction of the Laramie River Station, the University of Wyoming conducted two socioeconomic assessment studies.<sup>1</sup> Thus, monitoring the impact of the Laramie River Station allows us to assess the accuracy of the methods we used in projecting impact of the plant.

---

<sup>1</sup>G. Watts, The Socioeconomic Impact of the Proposed Laramie River Station. Laramie, WY: Division of Business and Economic Research, University of Wyoming, 1975.

J. Thompson, A. Blevins and C. Ellis. Social Impact Assessment of the Proposed Laramie River Station. Laramie, WY: Department of Sociology, University of Wyoming, 1975.



After extensive hearings before the Wyoming Industrial Siting Council, a conditional permit for construction of the facility was issued MBPP in spring 1976. The conditions attached to the permit by the Industrial Siting Council involved binding commitments on the MBPP to take certain actions to minimize socioeconomic impact associated with construction of the plant. These conditions are discussed where appropriate in succeeding chapters of this report. Actual construction of the Laramie River Station began in July 1976, and thus had been underway only a short time before this interim report was prepared in early 1977.

The second impacted area chosen for monitoring was the site of the Coal Creek Station Electrical Generating Facility and associated coal mine in McLean County, North Dakota. Construction of this facility began in mid-1975, and is being carried out under a joint agreement by the United Power Association, the Cooperative Power Association, and the Falkirk Mining Company. Construction plans call for the completion of two 500-net megawatt generating units by the end of 1980. Prior to construction of the facility, an extensive study of socioeconomic projections concerning its impact was completed by a study team from North Dakota State University.<sup>2</sup> Thus, selection of the Coal Creek Station as a monitoring site enabled us to again check the accuracy of methods used to make impact projections.

Location of the two impacted sites relative to metropolitan areas is shown in Figures 1-1 and 1-2. The Laramie River Station construction site is located approximately 75 miles north of Cheyenne, WY and five miles northeast of Wheatland, WY (population approximately 3,000 prior

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<sup>2</sup>Norman E. Toman et al., Economic Impacts of Construction and Operation of the Coal Creek Electrical Generation Complex and Related Mine. Fargo, ND: Department of Agricultural Economics, North Dakota Agricultural Experiment Station, North Dakota State University, 1976.



# LEGEND

- Places of 25 000 to 50 000 inhabitants

0 10 20 30 40 50 MILES

FIGURE 1-1. Map of Wyoming showing location of the Laramie River Station.



## NORTH DAKOTA— STATE LOCATION

### McLEAN COUNTY

FIGURE 1-2. Map of North Dakota showing location of the Coal Creek Station.

to construction). The Coal Creek Station is located approximately 55 miles north of Bismarck, ND, almost equal distance between Underwood and Washburn, ND, two communities under 1,000 in population prior to construction.

### 2.3 Control Counties

Selection of control counties was more difficult than selection of impacted counties. Our objective was to select one control county for each impacted area based upon the following criteria.

1. It should not be the site of any large-scale energy development during the next 10 years.
2. It should be as similar as possible to the impacted county in terms of its economic and social characteristics.
3. If possible, it should be in the same state as the impacted counties so the influences of variations in state law could be held constant.

As the study proceeded, it became impossible to satisfy all three criteria simultaneously. First, it was difficult to identify any county in eastern Wyoming that was demographically similar to Platte County which would not be influenced by coal development during the next 10 years. The few counties in the state not expected to be impacted by coal development have economies quite diverse from that of Platte County. Therefore, in violation of criteria three, we selected Kimball County, in western Nebraska, as a control site for Platte County, Wyoming.

A similar problem existed in North Dakota as it was difficult to identify a western North Dakota county which would not experience some indirect impact of coal development over the next 10 years. Thus, we selected Wheatland County, Montana, as an appropriate control site for McLean County, ND.

## 2.4 Demographic Baseline Information

A brief demographic baseline for each county prior to energy development is presented in Tables 2-1 and 2-2. Table 2-1 compares Platte County, Wyoming (test county) with Kimball County, Nebraska (control county) using information from the 1970 Census. The data show the two counties were similar in terms of total population and employment, the ratio of service employment to population, and median years of education of the population. Kimball County is smaller in land area and somewhat more densely populated than Platte County, but the largest towns in the counties were of comparable size, and both served as county-wide trade centers. Other pertinent differences include the fact that Kimball County's economy was somewhat more heavily oriented towards mining than Platte County's, resulting in higher median income levels. The percentage of the population in retirement age categories was somewhat lower for Kimball County than Platte County. Overall both counties are typical of rural areas in the West which are sparsely populated and have economies based primarily on agriculture and mining.

Table 2-2 compares McLean County, North Dakota with its test county, Wheatland County, Montana. The most significant difference between the two counties is that McLean was larger, both geographically and in terms of population and employment. However, the counties were similar in terms of their economic base, income levels, and the percentage of the population in retirement age categories. Furthermore, the largest town in each of the counties were roughly comparable in size. As of 1970, both counties depended primarily on agriculture as an economic base, and were typical rural areas of the northern Great Plains. The principal difference was that McLean County was more populated, and covered a larger land area.

TABLE 2-1. Demographic comparison of Platte and Kimball Counties, 1970\*.

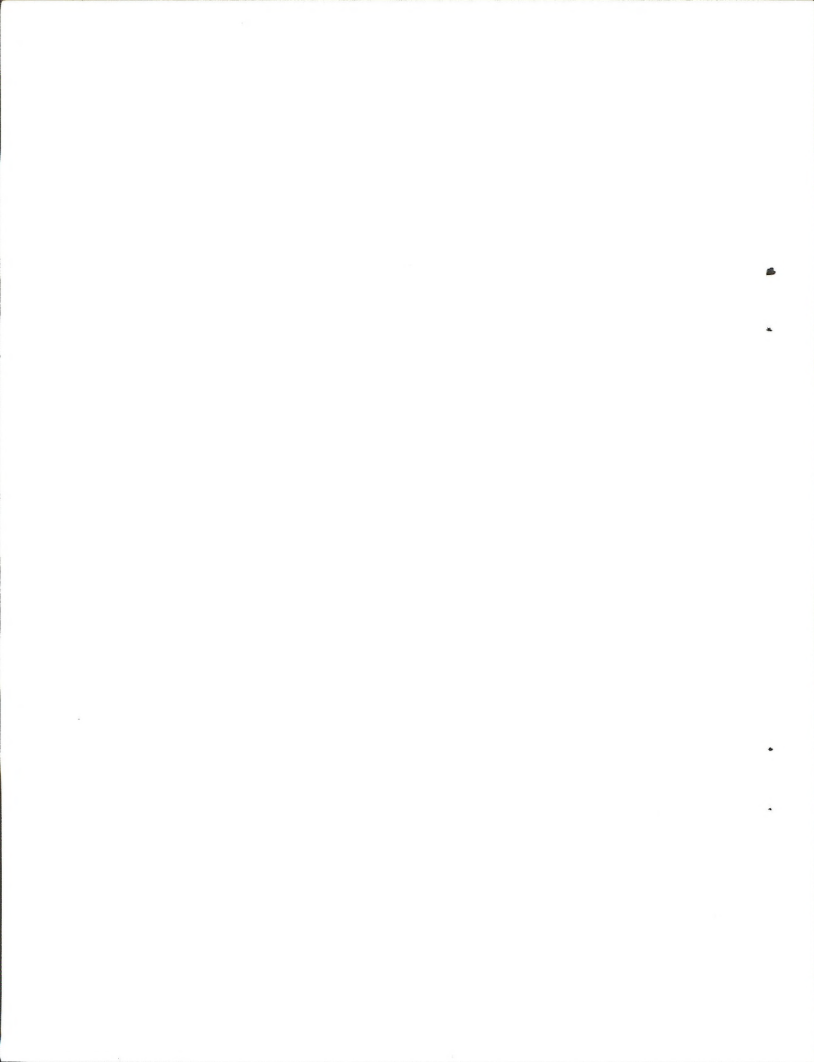
Description	Platte County, Wyoming	Kimball County, Nebraska
County population	6,486	6,209
Largest town population	2,498	3,680
Population density (per square mile)	3	6
Employment	2,586	2,460
Agriculture (percent)	24%	15%
Mining (percent)	8	15
Manufacturing (percent)	5	8
Service (percent)	63	62
Service employment/ population	0.25	0.25
Median income	\$7,449	\$9,109
Median education	12.1 years	12.3 years
Percent population over 65	12.1	8.2

\*U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population: General Social and Economic Characteristics, "Wyoming," PC(1)-C52, "Nebraska," PC(1)-C29.

TABLE 2-2. Demographic comparison of McLean and Wheatland Counties, 1970\*.

Description	McLean County, North Dakota	Wheatland County, Montana
County population	11,251	2,529
Largest town population	1,614	1,375
Population density (per square mile)	5	2
Employment	3,514	1,080
Agriculture (percent)	35%	30%
Mining (percent)	<1	--
Manufacturing (percent)	1	2
Service (percent)	64	68
Service employment/ population	0.20	0.23
Median income	\$7,092	\$7,467
Median education	10.2 years	12.4 years
Percent population over 65	12.1	13.4

\*U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population: General Social and Economic Characteristics, "North Dakota," PC(1)-C36, "Montana," PC(1)-C28.





CHAPTER 3  
SUMMARY OF FINDINGS

3.1 Employment and Population

Construction and operation of large electrical generating plants in rural areas directly produce large increases in employment, especially during the construction phase. Since increases in both direct and indirect employment<sup>1</sup> are directly related to population growth, it is important to determine relationships among these variables so that communities can adequately plan to alleviate impacts.

Changes in employment and population associated with the early construction stages in the two impacted counties are summarized in Table 3-1. The first column of that table estimates employment and population changes in McLean County, North Dakota, from mid-1974 through mid-1976. Total employment increased by approximately 660 jobs over the two-year period. Of these, 430 jobs were associated with the construction of the Coal Creek Electrical Generating facility and its associated coal mine. We estimate that an additional 300 jobs were created in the service sector of the local economy, and that 70 jobs were lost in the agricultural sector of the economy during the same period.

We also estimate that the population of McLean County grew by approximately 900 persons during this period. This population increase is relatively low because only 20 percent of the construction work force

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<sup>1</sup>Jobs associated with construction and operation of energy facilities are referred to as "direct" employment in this report. Increases in direct employment, of course, increase demands for goods and services. Employment increases in this sector are referred to as "indirect," "induced," or "service" employment.

TABLE 3-1. Summary of employment and population changes for test counties (1974-1976) and population ratios (1976).

Description	McLean County <sup>1</sup>	Platte County <sup>2</sup>
Employment Increase	+660	+560
Energy Related	+430	+220
Service Related	+300	+350
Other	-70	-10
Population Increase	+900	+1,340
Ratios (Multipliers)		
Population/Employment	1.36	2.39
Population/Adj. Employment <sup>3</sup>	2.85	3.09
Service Emp./Population	0.33	0.26

<sup>1</sup>University of Wyoming estimates June 1974 to June 1976.

<sup>2</sup>University of Wyoming estimates June 1974 to December 1976.

<sup>3</sup>Adjusted employment is the number of new workers living in the county.

actually moved into the county. The remainder were either previous residents of the county or commute to the plant from outside the county. When employment is adjusted to reflect only new employees who have moved into the county during the two-year period, the population increase of 900 represents an increase of 2.85 persons for each such employee.

The ratio of new service jobs to population during the period was 0.33, considerably higher than the historical ratio of 0.20 based upon data from the 1970 Census (see Chapter 2). We attribute this increase primarily to large numbers of construction workers who are spending money in the county even though they do not reside in the county.

The second column of Table 3-1 shows population and employment changes for Platte County, Wyoming. In this case, the time interval is a 2 1/2-year period extending from mid-1974 through the end of 1976. Since construction on the Laramie River Station began in July 1976, this interval includes the first six months of construction activity. Our estimates show that as of December 1976, employment at the construction site had reached 220 workers, and an additional 350 jobs had been induced in the service sector of the economy. These employment increases had resulted in a total population increase of approximately 1,340 persons. As with McLean County, the population increase seems small relative to employment increases. However, when the employment data are adjusted to reflect the fact only 41 percent of the construction jobs at the plant site are held by employees who moved into the county, the population increase appears more reasonable. The ratio of service jobs to population of 0.26 is consistent with the historical figure of 0.25 based upon 1970 Census data (see Chapter 2).

### 3.2 Trade and Services

Trade and services are referred to as "indirect" or "induced" industries because they generally do not bring large amounts of outside money into a local economy. Instead, they play a very important role providing goods and services to the indigenous population in an area. Trade establishments are primarily engaged in the sale of goods, such as food and gasoline, while service establishments provide a variety of services ranging from television repair to dental work.

Our survey of businesses indicates that both McLean County and Platte County experienced significant increases in sales in the trade and service sectors from 1974 to 1975 (See Table 3-2). This finding contrasts with the situation in the two control counties, where only

TABLE 3-2. Sales per establishment in test and control counties, 1974-1975.<sup>1</sup>

County	Trade Establishment			Service Establishments		
	1974	1975	Percent Change	1974	1975	Percent Change
McLean	\$628,000	\$800,000	+27%	\$27,000	\$34,000	+26%
Platte	184,000	240,000	+30%	43,000	45,000	+ 5%
Kimball	491,000	510,000	+ 4%	62,000	61,000	- 2%
Wheatland	137,000	139,000	+ 1%	42,000	36,000	-14%

<sup>1</sup>Source: University of Wyoming Estimates.

minor changes in sales patterns were observed during the same time period. It is particularly interesting to note that retail sales in Platte County increased almost 30 percent from 1974 to 1975, long before construction actually began on the power plant. However, significant economic activity in anticipation of the plant was under way in Platte County during 1975.

Our other tentative findings tend to contradict some widely held beliefs concerning the impact of energy facilities. First, while sales of goods and services increased in the impact counties, prices for goods and services in those counties differ only slightly from those in the control counties. Second, although wage rates from 1975 to 1976 rose slightly more in the test counties than in the control counties, the increase was not excessive. Finally, it appears that during the early stages of construction, sales increases accrue mainly to existing

businesses, as opposed to new trade and service establishments. However, this pattern may change as construction at each site proceeds.

### 3.3 Housing Patterns and Preferences

Knowledge of distributional patterns and consumer preferences for housing in impacted areas of the Old West Region is incomplete. Considering the relatively large size of the transient work force necessary to build electric generating plants, it is important to know the housing types desired and used by these groups. Such housing includes mobile homes, apartments, and single family dwellings. Similarly, it is important to know the housing choices of the permanent work forces who maintain and operate completed plants.

Table 3-3 shows that housing projections from the two impact studies were reasonably close to the number and types of housing actually chosen by incoming population with one exception: the number of workers choosing "temporary" housing (e.g., boarding rooms, motel rooms or recreation vehicles -- excluding mobile homes) was higher than either study predicted. Approximately 30 percent of incoming construction workers chose temporary housing accommodations in both impacted counties. Given the fact that alternative housing, including mobile homes and mobile home spaces, was available in Platte County, this figure indicates that there is a certain type of worker who chooses temporary housing because of his particular living needs.

The number of mobile homes also has increased substantially in the impacted counties. However, the mobile home stock has been increasing in the control counties also although at a slower rate.

TABLE 3-3. Actual and projected distribution of housing for construction workers in impacted counties, 1976.

Type of Housing	McLean County		Platte County	
	Actual <sup>1</sup>	Projected <sup>2</sup>	Actual <sup>1</sup>	Projected <sup>2</sup>
Single Family	17%	20%	8%	3%
Apartments	21	20	13	14
Mobile Homes	30	60	49	61
Temporary <sup>4</sup>	<u>32</u>	<u>--</u>	<u>30</u>	<u>22</u>
TOTALS	100%	100%	100%	100%

<sup>1</sup>University of Wyoming survey data.

<sup>2</sup>Toman, N., et al., Economic Impacts of Construction and Operation of the Coal Creek Electrical Generation Complex and Related Mine, Department of Agricultural Economics, North Dakota State University, Fargo, N.D., May 1976.

<sup>3</sup>Division of Business and Economic Research, The Socioeconomic Impact of the Proposed Laramie River Station, University of Wyoming, August 1975.

### 3.4 County Services, Revenues and Expenditures

The effect of energy development activities on the level and cost of public services and general government activities is a crucial concern in any study of impact. The problem is compounded by the fact that expenditures are usually determined by available revenues, not by service needs. Thus, the political subdivisions in the Old West Region often provide public services according to what they can afford, not according to what their citizens may need or want. Thus, analyses of expenditures alone in impact situations can provide misleading insights into what are the actual levels of demand/need for public services in growing communities. For this reason, in Chapter 10 we analyze the subjective ratings of local residents of each county toward the services available to them.

During the two year period from June 30, 1974 through June 30, 1976 (fiscal years 1975 and 1976) total county expenditures increased from a low of eight percent in Platte County to a high of 65 percent in McLean County. The period for which these expenditures were analyzed includes the first year of construction of the Coal Creek Station in McLean County, but is prior to the start of construction of the Laramie River Station in Platte County.

Excluding road and bridge expenditures, McLean County expenditures rose only 21 percent during this period, which was lower than the rate of increase in one of the control counties. Thus, the construction of the Coal Creek Station has had little impact upon overall McLean County expenditures for other services. However, it appears that the reason that expenditures have not increased more in McLean County is that the tax base (assessed valuation) of the county did not rise significantly during the first year of construction.

Law enforcement, however, is a budgetary category where expenditures did increase substantially in both Platte and McLean Counties from FY-75 to FY-76. During this period, expenditures rose 46 percent in Platte County and 165 percent in McLean County. These expenditure increases are attributable not only to increasing crime rates, but also to the need for a new jail facility and other items of equipment in McLean County. During the same period, law enforcement expenditures fell by five percent in Kimball County, and rose by 23 percent in Wheatland County.

Health services in McLean and Platte Counties appear to be less adequate than in the control counties because of the shortage of medical manpower. The ratio of population to physicians is higher in both

impacted counties than in the control counties, and will become worse in the future unless recruitment efforts for new doctors are successful. Because of the shortage of manpower, hospital facilities in the two impacted counties have not been overtaxed. Instead, it appears that many residents have been forced to leave their local area for medical treatment.

Changes in public assistance payments from FY-75 to FY-76 do not appear markedly different between the two impacted counties and the one control county for which information is available. However, the administrative costs associated with social service agencies in the impacted counties increased at a markedly greater rate than in the control county.

### 3.5 Municipal Revenues, Expenditures and Services

Fiscal flows for municipal services in five communities are being monitored. These communities are Wheatland, near the construction site of the Laramie River Station in Platte County; Underwood and Washburn, the two communities closest to the site of construction of the Coal Creek Station in McLean County; and Harlowton and Kimball, the county seats of the two control counties. We emphasized that interim results contained herein are incomplete, the latest financial data available at the time of this writing is for fiscal year 1976, which ended June 30, 1976.

However, our interim analysis of municipal revenues, expenditures and services indicates that municipal operating expenditures increased as much as 50 percent during the first year of construction in some impacted North Dakota communities. The largest expenditure increases observed have been for public utilities, including water, sewer, sanitation and electricity. Police protection costs also have increased in the



impacted towns. These increases have been for additional full- or part-time officers; new police equipment and supplies, such as patrol cars and electronic equipment; and expanded jail facilities. Such expenditure increases have exceeded 100 percent during a two year period for Underwood, North Dakota, and have been substantial in other impacted communities.

As the number of structures requiring fire protection increases in impacted towns, the cost for their protection also increases. Washburn, North Dakota switched from a strictly volunteer department to hiring full-time fire department personnel. As a result, the cost of fire protection in Washburn, ND increased substantially following development at the Coal Creek site.

While normal municipal revenues also increase during energy development, preliminary data indicate that these increases are not at a rate sufficient to pay for the new expenditures. Since the capacity of most towns in the Old West Region to increase revenues to meet increasing expenditures is limited by state law, impacted communities have had to rely on special fees and grants to finance the cost of development.

### 3.6 School Enrollments

Rapidly expanding energy development poses several important problems for school districts in impacted areas. These problems have been observed in the past in communities affected by energy developments, yet more study is needed before they can be anticipated well enough to minimize their impacts.

Table 3-4 shows that school enrollments in the impacted counties (McLean and Platte) increased between 10 percent and 27 percent during the two-year period extending from fall 1974 to fall 1976. During the same period enrollments in the control counties (Kimball and Wheatland)

TABLE 3-4. School enrollments of selected school districts in the four study counties, 1974, 1975, and 1976.

Item	Platte County, WY	McLean County, ND		Kimball County, NE	Wheatland County, MT
	Wheatland- Chugwater- Glendo	Underwood	Washburn	Kimball	Harlowton- Shawmut-Two Dot
Elementary Enrollments					
1974-75	853	171	221	913	297
1975-76	920	176	239	664	292
1976-77	1,050	199	269	603	294
% Change 1974-76	+23	+16	+22	-34	-1
High School Enrollments					
1974-75	420	99	107	407	169
1975-76	461	90	122	347	159
1976-77	476	97	114	365	152
% Change 1974-76	+13	-2	+7	-10	-10
All Grades (K-12)					
1974-75	1,273	270	328	1,320	466
1975-76	1,381	266	361	1,011	451
1976-77	1,526	296	383	968	446
% Change 1974-76	+20	+10	+17	-27	-4

declined 27 percent and four percent, respectively. The enrollment increases in the impacted counties were concentrated in grades kindergarten through eighth (K-8), with only small or nonexistent increases in high school enrollments.

In both impacted counties, actual enrollment levels for fall 1976 were below projected levels made prior to the start of construction of the power plants in each county. In both cases the discrepancy is partially due to assumptions concerning the timing of construction. However, both sets of projections appear to have over-projected high school enrollment increases relative to increases in elementary grades.

### 3.7 Aspects of Community Change

Changes occurring with resource development encompass more than physical and economic changes. The basic social organization of communities in developing areas may be changing as a result of the rapid population influx. Changes in social organization are often referred to as changes in the "quality of life." Usually, efforts to measure and predict changes in "quality of life" consist of analyzing people's statements about their attitudes and beliefs in relation to the physical changes in their environment. As this study proceeds we will try to examine community change by describing not only people's statements of beliefs and attitudes, but also changes in behavior patterns.

Both outdoor and indoor recreation facilities were assessed in the impacted counties to estimate the overall adequacy of recreational facilities to meet the demands of rapid growth. Outdoor recreation opportunities are plentiful in both counties. Indoor recreation facilities are in short supply in both counties. Data are not yet available to indicate whether this shortage may contribute to worker turnover or

other problems, and, hence, constitute a negative social change. Efforts are being made to monitor usage rates and consumer satisfaction to help assess the role recreation plays in situations of community change.

Responses to questions on satisfaction with public services indicate people in all four counties are generally quite pleased with most public services including schools. There was some dissatisfaction expressed with shopping facilities and household services, particularly in the non-impact counties. On the subject of health services, the impact counties expressed greater dissatisfaction. In all four counties the object of greatest dissatisfaction was county government.

Reports of arrests in the four counties were analyzed for calendar years 1975 and 1976 on the assumption that arrest records are a reasonable indicator of the rate at which crimes are being committed. Although the changes are not large in absolute terms, the impacted counties have experienced large percentage increases in arrests for burglary, theft, vandalism, and drug and alcohol related offenses. The available data suggest at least a doubling of total arrests since the beginning of construction activities. Should arrests continue to increase at this rate, the communities involved will be facing serious law enforcement problems.

Generally, people's perceptions of crime correspond to the pattern revealed by arrest records. When people were asked to list what they thought were "crime problems," their problem list corresponded reasonably well to problem areas reflected by arrest records.

People's attitudes toward energy development and economic growth are generally similar in all four counties. This finding is consistent with the economic and demographic similarity of the counties prior to

development. Whether attitudes in the impacted counties will change over time is a subject for further study.



## CHAPTER 4

### EMPLOYMENT AND POPULATION

#### 4.1 Introduction

Construction and operation of large electrical generating plants in rural areas directly produce large increases in employment, especially during the construction phase. Since increases in both direct and indirect employment<sup>1</sup> are directly related to population growth, it is important to determine relationships among these variables so that communities can adequately plan to alleviate impacts. This chapter discusses the changes that have taken place in employment and population due to the construction of the Laramie River Station in Platte County, Wyoming, and the Coal Creek Station in McLean County, North Dakota. Since construction has only been underway for a relatively short period at these two sites, the following results are only preliminary. As our study proceeds, it should be possible to verify or discard some of the tentative hypotheses presented in this report.

#### 4.2 Summary of Findings

Changes in employment and population associated with the early construction stages for each facility are summarized in Table 4-1. The first column of that table estimates employment and population changes in McLean County, North Dakota, from mid-1974 through mid-1976. Total

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<sup>1</sup>Jobs associated with construction and operation of energy facilities are referred to as "direct" employment in this report. Increases in direct employment, of course, increase demands for goods and services. Employment increases in this sector are referred to as "indirect," "induced," or "service" employment.

employment increased by approximately 660 jobs over the two-year period. Of these, 430 jobs were associated with the construction of the Coal Creek Electrical Generating facility and its associated coal mine. We estimate that an additional 300 jobs were created in the service sector of the local economy, and that 70 jobs were lost in the agricultural sector of the economy during the same period.

Based upon increases in utility hook-ups and new housing in the county, we estimate that the population of McLean County grew by approximately 900 persons during the period. This population increase is relatively low because only 20 percent of the construction work force actually moved into the county. The remainder were either previous residents of the county or commute to the plant from outside the county. When employment is adjusted to reflect only new employees who have moved into the county during the two-year period, the population increase of 900 represents an increase of 2.85 persons for each such employee.

The ratio of new service jobs to population during the period was 0.33, considerably higher than the historical ratio of 0.20 based upon data from the 1970 Census (see Chapter 2). We attribute this increase primarily to large numbers of construction workers who are spending money in the county even though they do not reside in the county.

The second column of Table 4-1 shows population and employment changes for Platte County, Wyoming. In this case, the time interval is a 2 1/2-year period extending from mid-1974 through the end of 1976. Since construction on the Laramie River Station began in July 1976, this interval includes the first six months of construction activity. Our estimates show that as of December 1976, employment at the construction site had reached 220 workers, and an additional 350 jobs had been induced



TABLE 4-1. Summary of employment and population changes for test counties (1974-1976) and population ratios (1976).

Description	McLean County <sup>1</sup>	Platte County <sup>2</sup>
Employment Increase	+660	+560
Energy Related	+430	+220
Service Related	+300	+350
Other	-70	-10
Population Increase	+900	+1,340
Ratios (Multipliers)		
Population/Employment	1.36	2.39
Population/Adj. Employment <sup>3</sup>	2.85	3.09
Service Emp./Population	0.33	0.26

<sup>1</sup>University of Wyoming estimates June 1974 to June 1976.

<sup>2</sup>University of Wyoming estimates June 1974 to December 1976.

<sup>3</sup>Adjusted employment is the number of new workers living in the county.

in the service sector of the economy. These employment increases had resulted in a total population increase of approximately 1,340 persons. As with McLean County, the population increase seems small relative to employment increases. However, when the employment data are adjusted to reflect the fact only 41 percent of the construction jobs at the plant site are held by employees who moved into the county, the population increase appears more reasonable. The ratio of service jobs to population of 0.26 is consistent with the historical figure of 0.25 based upon 1970 Census data (see Chapter 2).

Our interpretation of the data in Table 4-1 raises two interesting points. First, the impact of the Laramie River Station apparently has

been greater in terms of population increases than the impact of the Coal Creek Station even though total employment levels are higher at the Coal Creek Station. The main reason for this difference appears to be the large commuting construction labor force residing in the area surrounding McLean County. About 65 percent of the total work force travel daily to the construction site, providing relatively little impact upon population growth in the county. In Platte County, on the other hand, a larger proportion of plant construction workers have moved into the area.

Second, the data indicate that induced employment appears to have increased rapidly during the early construction stages for both facilities. Many previous impact studies have assumed that induced employment lags considerably behind increases in construction employment and does not reach the same levels associated with permanent jobs in the area. It appears that neither of these assumptions have been borne out in the early stages of construction of both plants under study. We have analyzed these population and employment changes in more detail in the following sections of this chapter.

#### 4.3 Energy Related Employment

There has been considerable, recent speculation about the size of a construction work force required to build a coal-fire electrical generating plant in the Northern Great Plains. Much of this speculation arises because projections of the construction force for the Jim Bridger Power Plant in Sweetwater County, Wyoming, were exceeded nearly threefold during the peak construction activity during the early 1970's. This much publicized deviation between the actual and projected work force requirements has made many policy-makers uncertain about figures to use for planning impact alleviation.

The following section compares projected versus actual employment levels for the two coal-fired generating plants considered in this study. Projected and actual employment levels at the Coal Creek Station in McLean County, North Dakota, are shown in Table 4-2. The projected employment figures are engineering estimates used in the study of Economic Impacts of Construction and Operation of the Coal Creek Electrical Generating Complex and Related Mines.<sup>2</sup> The peak projected employment level of 980 construction workers for 1978 is relatively low for a 1,000 megawatt facility. In comparison, the peak work force at the 1,500 megawatt Jim Bridger facility was approximately 3,200 construction workers. However, at the Coal Creek site during 1975 and 1976, actual peak employment levels were close to projected values. In 1975 peak employment was only five construction workers higher than projected and only 32 higher than projected for 1976. Operation employment was one greater than anticipated for 1975, while being 62 less than projected for 1976.

Projected and actual employment levels for the Laramie River Station are given in Table 4-3. The projected employment levels for the construction of the plant were furnished by the contracting engineers. We used these figures to develop estimates of the peak construction work force required to construct a 1,500 megawatt coal-fired facility. The estimate is based upon actual employment levels at 12 different construction sites in the Rocky Mountain region.<sup>3</sup>

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<sup>2</sup> By Norman E. Toman et al., Fargo, N.D.: Department of Agricultural Economics, North Dakota Agricultural Experiment Station, North Dakota State University, 1976.

<sup>3</sup> See Appendix A.

TABLE 4-2. Projected and actual peak employment by year for the Coal Creek Station, 1975-1981.

Year	Projected Employment		Actual Employment	
	Construction	Operation	Construction	Operation
1975	225	35	230	36
1976	720	110	752	48
1977	925	190		
1978	980	290		
1979	550	393		
1980	50	448		
1981	0	485		

Construction began on the facility in July 1976, and reached a peak of 274 workers in November 1976. This compares with a projected peak employment level of 520 construction workers for that period. This discrepancy occurred because the projections were based upon an assumed start date of April 1976, resulting in lower actual employment levels than projected for the first year.

The relationship between projected and actual employment levels for the Laramie River Project is presented in Table 4-4. Monthly projections for construction employment are adjusted to reflect the fact that construction started late. It is obvious that actual employment levels exceeded projections after the first six months of construction. The primary reason for this is that two construction shifts worked during fall 1976. The original projections were for a single shift construction operation. Missouri Basin Power Project (MBPP) engineers anticipated that the time lost due to delays will have been made up by spring 1977. Thereafter, employment levels will approximate original projections.

TABLE 4-3. Projected and actual peak employment by year for the Laramie River Station, 1976-1985.

Year	Projected Employment <sup>1</sup>		Actual Employment <sup>2</sup>	
	Construction	Operation	Construction	Operation
1976	520	0	274	0
1977	750	0		
1978	1,780	30		
1979	2,000	120		
1980	1,210	160		
1981	630	160		
1982	840	160		
1983	560	200		
1984	0	200		
1985	0	200		

<sup>1</sup> Source: The Socioeconomic Impact of the Proposed Laramie River Station, Division of Business and Economic Research, University of Wyoming, August 1975.

<sup>2</sup> Source: Missouri Basin Power Project (MBPP).

TABLE 4-4. Projected and actual construction employment by month for the Laramie River Station, 1976-1977.

Year/Month	Original Projection <sup>1</sup>	Actual Employment <sup>2</sup>
1976 July	29	90
August	106	163
September	180	211
October	160	268
November	90	274
December	120	217
1977 January	145	
February	139	
March	156	
April	520	
May	600	
June	625	
July	650	
August	670	
September	724	
October	690	
November	682	
December	670	

<sup>1</sup>Source: See text.

<sup>2</sup>Source: Missouri Basin Power Project (MBPP).

In summary, the actual employment levels at Coal Creek Station in McLean County, North Dakota, were quite close to projected levels for the first two years of the project. Employment levels at the Laramie River Station are lower than projected for the first year of construction due to schedule slippages. However, employment actually was higher than projected for the first six months on a month by month basis due to an acceleration of the construction schedule.

#### 4.4 Residence of Construction Work Force

A problem in evaluating the impact of energy developments is projecting where incoming workers will live. An important part of our research is to determine settlement patterns for the two study sites. Therefore, the construction work force was surveyed at the Coal Creek Station in late August and early September 1976, and the MBPP initiated a brief survey of its own as a part of the job application process during fall 1976.

The results of the Coal Creek survey are given in Table 4-5. Of the 247 workers interviewed, approximately 66 percent lived outside McLean County and 34 percent resided in the county. The majority of those from outside the county lived in the Bismarck-Mandan area, approximately 50-60 miles south of the construction site. Of those living within McLean County, the largest portion lived in the two towns closest to the plant site, Underwood and Washburn. The remainder resided in towns throughout the county.

Table 4-5 also shows a breakdown of plant employees into local and nonlocal employees<sup>4</sup> as to place of residence. As could be expected,

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<sup>4</sup> Local employees are defined as that group residing in the area prior to the initiation of construction of the plant in mid-1975. Nonlocal employees are those who have moved into the area since construction of the plant began.

a higher proportion of nonlocal employees resides closer to the plant site than do local employees. This is because the Bismarck-Mandan area is the permanent home of a relatively large construction labor force. Generally, the laborers do not move to the location of a new construction project; rather they commute up to 100 miles for work. New employees moving into the area are likely to select a home close to the construction site itself.

Table 4-6 provides a similar breakdown of the construction work force at the Laramie River Station. It is evident that the residence distribution for employees at this plant site is quite different from that of the Coal Creek site. As of mid-December 1976, a total of 222 construction workers were employed, 82 percent resided in Platte County and only 18 percent lived outside the county. At the time of survey, 100 percent of the nonlocal employees resided in Platte County, while approximately 70 percent of the local construction workers also lived in Platte County. The local workers residing outside the county were primarily from the Cheyenne, Laramie and Torrington areas.

Differences in employment patterns at the two construction sites are summarized in Table 4-7. Approximately the same number of construction workers had moved into both counties to work on the plant. However, in Platte County, these new residents composed over 40 percent of the total construction work force of 222; while in McLean County they composed only 20 percent of the total construction work force of 484. Another striking difference is that in North Dakota approximately 88 construction employees moved into the area after construction of the plant began, but did not locate in McLean County. At the Laramie River Station, in comparison, all new employees at the plant site established residence in Platte County.



TABLE 4-5. Residence of construction work force employed at the Coal Creek Station, September 1976.  
(Results from a survey of about 50 percent of the labor force.)

Description	All Employees		Local Employees		Nonlocal Employees	
	Number	Percent	Number	Percent	Number	Percent
Residing in						
McLean County	85	34%	36	24%	49	52%
Underwood	(28)	(11%)	(10)	(7%)	(18)	(19%)
Washburn	(27)	(11%)	(7)	(5%)	(20)	(21%)
Garrison	(12)	(5%)	(10)	(7%)	(2)	(2%)
Riverdale	(5)	(2%)	(4)	(3%)	(1)	(1%)
Turtle Lake	(3)	(1%)	(1)	(1%)	(2)	(2%)
Max	(3)	(1%)	(3)	(2%)	(0)	(0%)
Welton	(3)	(1%)	(1)	(1%)	(2)	(2%)
Unknown	(4)	(2%)	(0)	(0%)	(4)	(4%)
Residing Outside						
McLean County	<u>162</u>	<u>66%</u>	<u>117</u>	<u>76%</u>	<u>45</u>	<u>48%</u>
TOTAL	247	100%	153	100%	94	100%

TABLE 4-6. Residence of construction work force employed at the Laramie River Station, December 1976.

Description	All Employees		Local Employees		Nonlocal Employees	
	Number	Percent	Number	Percent	Number	Percent
Residing in Platte County	182	82%	89	69%	93	100%
Wheatland	(147)	(66%)	(66)	(51%)	(81)	(87%)
Rural	(16)	(7%)	(14)	(11%)	(2)	(2%)
Guernsey	(4)	(2%)	(4)	(3%)	(0)	(0%)
Chugwater	(4)	(2%)	(4)	(3%)	(0)	(0%)
Glendo	(3)	(1%)	(1)	(1%)	(2)	(2%)
Dwyer	(1)	(-)	(0)	(0%)	(1)	(1%)
Unknown	(7)	(3%)	(0)	(0%)	(7)	(8%)
Residing Outside Platte County	<u>40</u>	<u>18%</u>	<u>40</u>	<u>31%</u>	<u>0</u>	<u>(0%)</u>
TOTAL	222	100%	129	100%	93	100%

TABLE 4-7. Comparison of local and nonlocal employment at the Laramie River and Coal Creek Stations.

Employment Category	<u>Laramie River Station</u>		<u>Coal Creek Station</u>	
	Number	Percent	Number	Percent
New County Residents	93	42%	96	20%
New Area Residents	0	0	88	18
Local County Residents	89	40	71	15
Local Area Residents	<u>40</u>	<u>18</u>	<u>229</u>	<u>47</u>
TOTALS	222	100%	484	100%

The third row of the table shows that many local residents of both counties were employed on the power project. At the Coal Creek site, however, almost 50 percent of the construction work force was made up of residents from the area outside the county. This compares to only 18 percent for Platte County.

These results suggest important implications for socio-economic impact. First, although the construction work force at the Laramie River Station was only slightly over 200 employees in late 1976, approximately 90, or 41 percent of the total, had moved into the county for the project. However, at the Coal Creek Station, where employment had reached almost 500 in September 1976, only 96, or 20 percent of the total, had moved into the county for the specific purpose of working on the plant. Thus, the total impact from new construction workers was as great in Platte County during the first few months of construction as it was in McLean County after the second full construction season.

The residence of the labor force can also be considered a function of the daily distance traveled to the project.

Table 4-8 shows that a majority of the construction workers at the Coal Creek Station drive relatively long distances to the plant site. Fewer than 12 percent of the long-time area residents (local employees) live within 20 miles of the plant site; 14 percent live between 20 and 39 miles of the plant site; and, 74 percent commute over 40 miles per day to the plant site. A large number of this latter category are those commuting from the Bismarck-Mandan area. By contrast at the Laramie River Station, a much higher percentage of local employees come from the Wheatland area, within 20 miles of the plant site. However, this percentage will probably decline in the future as the size of the construction work force increases, the local labor force reaches full employment, and available housing becomes limiting.

The figures for nonlocal employees also differ between the two plants. At the Coal Creek Station, only 40 percent of those moving into the area to work on the project selected housing within 20 miles of the construction site. The majority located over 40 miles from the plant site. At the Laramie River site, however, almost 90 percent of the new workers located within 20 miles of the plant site, primarily in or around Wheatland.

There appear to be at least two major forces involved in determining the distribution of construction workers in these two study areas. First, due to the large number of construction projects in the area since World War II, the Bismarck-Mandan area has a large pool of skilled power plant construction workers. Many of these workers do not relocate from one job to another, thus the average commuting distance for the Coal Creek project is longer than would be expected in other areas.

TABLE 4-8. Distribution of construction workers' residence as a function of distance to plant site.

Distance to Plant	Coal Creek Station		Laramie River Station	
	Local Employees	Nonlocal Employees	Local Employees	Nonlocal Employees
Less than 20 miles	12%	40%	60%	87%
20-39 miles	14%	7%	9%	Unknown
40 miles and over	<u>74%</u>	<u>53%</u>	<u>31%</u>	<u>Unknown</u>
TOTALS	100%	100%	100%	100%

Second, prior to construction start up at the Laramie River site, in Platte County, extensive preparations were undertaken to provide adequate housing in the Wheatland area for the incoming work force. As a result, virtually all construction workers moving into the area during 1976 were able to reside in or around Wheatland. On the other hand, no such extensive housing development plans were undertaken in McLean County. Therefore, many of the incoming workers apparently had to live outside the county and commute for longer distances.

#### 4.5 County Employment

The impact of the construction of energy facilities on total employment in McLean and Platte Counties is illustrated in Tables 4-9 and 4-10, respectively. For comparison purposes, similar employment data are shown for the two control counties: Wheatland County, Table 4-11, and Kimball County, Table 4-12.

These tables use data from three different sources. First, values for 1970-1974 are from the Regional Economic Information System (REIS) of the Bureau of Labor Statistics, Department of Commerce, Washington, D.C. We have found these data the most up to date and reliable estimates of county employment available during noncensus years. Second, estimates for 1975 are based upon Employment Security Commission (ESC) data for each state, adjusted to take into account unrecorded employment. Finally, 1976 employment levels were estimated through a combination of ESC data and information from our survey of businesses conducted during fall 1976.

The information in Table 4-9 shows that total employment in McLean County has grown from 4,944 in 1970 to 5,698 in 1976, an increase of

TABLE 4-9. McLean County employment by sector, 1970-1976.

Sector	1970	1971	1972	1973	1974	1975	1976
Farm Proprietors	1584	1553	1523	1492	1475	1442	1409
Farm Workers	222	243	222	222	245	240	240
Manufacturing	40	50	53	50	55	54	60
Mining	63	49	33	55	55	70	100
Construction	193	218	196	274	246	357	659
Transportation, Communication, Utilities	75	70	73	77	80	107	107
Finance, Insurance, Real Estate	42	44	62	65	70	76	80
Trade	492	499	487	523	549	561	621
Services	553	557	459	452	493	529	568
Nonfarm Proprietors	688	693	722	720	722	720	730
Government	<u>1012</u>	<u>995</u>	<u>960</u>	<u>983</u>	<u>1046</u>	<u>1059</u>	<u>1124</u>
TOTALS	4964	4971	4790	4913	5036	5215	5698

Source: 1970-1974: U.S. Bureau of Economic Analysis, Regional Economic Information System (Unpublished).

1975-1976: University of Wyoming estimates.

TABLE 4-10. Platte County employment by sector, 1970-1976.

Sector	1970 <sup>1</sup>	1971 <sup>1</sup>	1972 <sup>1</sup>	1973 <sup>1</sup>	1974 <sup>1</sup>	1975 <sup>2</sup>	1976 <sup>2</sup>
Farm Proprietors	533	521	515	509	509	509	508
Farm Workers	148	148	418	148	148	148	148
Manufacturing	41	43	52	68	73	82	82
Mining	(D)	(D)	(D)	(D)	295	303	285
Construction	101	103	41	60	76	194	337
Transportation, Communication, Utilities	169	161	161	164	169	160	151
Finance, Insurance, Real Estate & Trade	452	502	495	513	576	592	675
Services	(D)	(D)	(D)	(D)	145	135	191
Nonfarm Proprietors	401	411	428	429	429	433	516
Government	<u>509</u>	<u>541</u>	<u>539</u>	<u>628</u>	<u>611</u>	<u>646</u>	<u>699</u>
TOTALS	2,892	2,987	2,914	3,050	3,031	3,202	3,592

(D)Not shown to avoid disclosure of confidential information.

<sup>1</sup>1970-1974 figures based on REIS-Bureau of Economic Analysis.<sup>2</sup>University of Wyoming estimates.



TABLE 4-11. Wheatland County employment by sector, 1970-1976.

Sector	1970	1971	1972	1973	1974	1975	1976
Farm Proprietors	178	176	172	169	166	163	160
Farm Workers	133	144	145	145	157	160	164
Manufacturing	Neg. <sup>1</sup>	Neg.	Neg.	9	6	6	6
Mining	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
Construction	Neg.	Neg.	Neg.	4	8	6	8
Transportation, Communication, Utilities	178	161	169	164	167	165	175
Finance, Insurance, Real Estate	20	17	N/A <sup>2</sup>	16	17	18	18
Trade	137	127	129	129	135	136	138
Services	160	162	122	177	166	174	176
Nonfarm Proprietors	190	196	204	204	205	211	215
Government	<u>178</u>	<u>185</u>	<u>183</u>	<u>191</u>	<u>201</u>	<u>203</u>	<u>208</u>
TOTALS	1,192	1,183	1,151	1,208	1,228	1,242	1,268

Source: 1970-1974; U.S. Bureau of Economic Analysis, REIS (Unpublished).

1975-1976: University of Wyoming estimates.

<sup>1</sup>Neg. = Negligible.

<sup>2</sup>N/A = Not Available, but included in totals.

TABLE 4-12. Kimball County employment by sector, 1970-1976.

Sector	1970	1971	1972	1973	1974	1975	1976
Farm Proprietors	418	413	407	402	397	392	387
Farm Workers	90	110	118	118	125	131	138
Manufacturing	142	125	121	114	N/A	133	133
Mining	308	264	207	176	185	192	201
Construction	161	107	N/A	189	274	74	81
Transportation, Communication, Utilities	91	79	81	99	114	114	114
Finance, Insurance, Real Estate	29	30	42	47	50	50	50
Trade	469	430	437	450	456	454	460
Services	N/A	N/A	N/A	162	188	221	248
Nonfarm Proprietors	326	338	352	351	352	369	388
Government	<u>420</u>	<u>410</u>	<u>380</u>	<u>419</u>	<u>428</u>	<u>453</u>	<u>480</u>
TOTALS	2,676	2,456	2,385	2,527	2,682	2,583	2,680

Source: 1970-1974; U.S. Bureau of Economic Analysis, REIS (Unpublished).

1975-1976: University of Wyoming estimates.

N/A = Not Available, but included in totals.

15 percent. Most of this growth (13 percent) occurred during 1975 and 1976 after construction began on the Coal Creek Station. The major growth sectors of the economy during that period were construction and induced employment, such as trade and services.

In Platte County, employment grew from 2,892 in 1970 to a level of 3,592 by the end of 1976, an increase of 24 percent. Over half of this growth occurred prior to the start of construction at the Laramie River Station in July 1976. A significant employment increase occurred between 1974 and 1975, in conjunction with new housing construction projects and expanded retail trade and service capacities in anticipation of the plant. Employment in the agricultural sector of the economy has remained constant in Platte County since 1970, contrasted to McLean County where the number of farm proprietors has decreased steadily in recent years.

Tables 4-11 and 4-12 show that there has been relatively little change in employment in the two control counties during the same period. Employment in Wheatland County is estimated to have grown three percent from 1970 to 1976, and remained virtually unchanged in Kimball County.

These figures are interesting in view of some widely held beliefs concerning the build up of induced employment in impacted areas. Briefly, several authors of socioeconomic studies, including ourselves, have hypothesized a substantial lag in the build up of employment in retail trade and service activities accompanying the construction of power plants. To the contrary, our analyses of Platte and McLean Counties, for the early construction stages, indicate that this hypothesis is incorrect. However, since the estimates shown in the tables above are subject to error, this conclusion is tentative until more data are available. These estimates will be continually updated as the study proceeds.

#### 4.6 Population

Population figures for McLean County for the period 1970-1981 are presented in Table 4-13. The first column of that table gives the population estimates for that county for the period 1970-1976. The estimates through 1974 are based upon data from the United States Bureau of the Census. The 1975 and 1976 estimates were prepared by the University of Wyoming. The figures in the third column of 4-13 projects the county's population without the impact of the Coal Creek Station. These projections were taken from the report of North Dakota Population Projections, 1975-1995, by Richard L. Ludtke, University of North Dakota, Fargo, N.D.

The second column of Table 4-13 projects the population of McLean County taking into account the impact of the Coal Creek Station. These estimates were based on the Ludtke study mentioned above and the study entitled Economic Impacts of Construction and Operation of the Coal Creek Electrical Generating Complex and Related Mines.<sup>5</sup> This latter report contained estimates of incremental population due only to the plant. These estimates were added to the population projections excluding the plant (column three) to arrive at a set of population projections with the plant (column two).

The 1975 estimate of actual population for McLean County is 11,500. This compares to population projections of 11,900 with the plant and 11,650 without the plant. Although it is not stated in the impact report by Toman et al., it is likely that their projection is based upon a peak employment level for 1975. Our estimate is for mid-summer 1975. Thus, the two figures appear to be reasonably consistent. In 1976, the projected population of 12,600 is larger than the estimated actual

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<sup>5</sup>Op. cit. Toman, N.E. 1976.

TABLE 4-13. McLean County population - actual and projected, 1970-1981.

Year	Actual <sup>1</sup>	Projected with Coal Creek Station <sup>2</sup>	Projected without <sup>3</sup> Coal Creek Station
1970	11,250	--	--
1971	11,700	--	--
1972	11,600	--	--
1973	11,500	--	--
1974	11,500	--	--
1975	11,500	11,900	11,650
1976	12,400	12,600	11,750
1977	--	13,100	11,900
1978	--	13,600	12,000
1979	--	13,650	12,150
1980	--	13,600	12,250
1981	--	13,850	12,400

<sup>1</sup>Source: 1970: U.S. Department of Commerce, Bureau of Census, 1970 Census of the Population.

1971-1974; Bureau of Census, Federal-State Cooperative Program for Population Estimates, Series P-26.

1975-1976: University of Wyoming Estimates.

<sup>2</sup>See text.

<sup>3</sup>See text.

population of 12,400. This difference again can be attributed to variations in periods chosen for the estimations.

Table 4-14 presents actual and projected population for Platte County. During the 1970 Census, the population was 6,846. According to our estimates, the population had grown to approximately 7,000 persons in 1975 and surpassed 8,300 persons by the end of 1976. These estimates, compared to projected population levels for Platte County with the construction of the Laramie River Station, show that the projected peak population for 1976 was exceeded by only 80. This situation is especially interesting because peak employment at the plant site did not reach projected 1976 levels due to early postponements in plant construction. It therefore appears that initial population projections for the MBP Project are low estimates.

Two principal factors apparently caused the population growth in the county to be higher than anticipated. First, population growth occurring in the northeastern portion of the county, primarily in and around Glendo, is unrelated to the Laramie River Station. This growth results from energy developments in Converse County.

Second, the model used to project employment and population in the county was based on an assumed lag between the influx of construction workers to build the plant and induced service employment. Instead, the development of new housing developments and expanded retail trade and service activities actually preceded the beginning of plant construction. This build up is partially attributable to construction permit conditions imposed by the Wyoming Industrial Siting Council. It specified, in advance of plant construction, the power project would build adequate housing for expected population increases. The early growth may have

TABLE 4-14. Population projections for Platte County for the period 1975-1985 without the MBP Project and with the MBP Project.

	Actual	Projected with MBP Project <sup>2</sup>	Projected Without MBP Project <sup>2</sup>
1970	6,846 <sup>1</sup>		
1975	7,000 <sup>2</sup>		
1976	8,340 <sup>3</sup>	8,260	7,069
1977		8,990	7,140
1978		11,652	7,212
1979		12,994	7,284
1980		11,717	7,357
1981		10,440	7,430
1982		10,824	7,504
1983		10,429	7,579
1984		9,175	7,655
1985		9,192	7,732

<sup>1</sup>1970: U.S. Bureau of Census, 1970 Census of Population.

<sup>2</sup>The Socioeconomic Impact of the Proposed Laramie River Station, Division of Business and Economic Research, University of Wyoming August 1976.

<sup>3</sup>University of Wyoming estimates.

partly been related to significant business expansion in response to early publicity of the project.

#### 4.7 Population Distribution

Table 4-15 presents population data for 1970, 1975 and 1976 in McLean County; for incorporated towns their distance from the plant site; and estimated percentage of the construction work force residing in each of the towns in August 1976. The largest population increase has been in Underwood, the town closest to the plant site. In the first year of plant construction, its population increased by approximately 247 persons. Washburn, approximately eight miles from the plant site, increased its population by approximately 119 residents during the same period.

Approximately 12 percent of the construction work force lived in Underwood in August 1976, while approximately 11 percent lived in Washburn. These figures, however, include people who resided in the community prior to the plant. Other towns in the county have also shown population increases during the same period, including Cole Harbor, Wilton, Garrison, and Mercer. Of these towns, only Garrison, 28 miles from the plant site, is home for a larger number of construction workers. Population increases in the other towns appear to be secondary, responding to increased retail trade and service traffic.

Table 4-16 gives the distribution of population increases for incorporated towns in Platte County for 1970, 1975 and 1976. We estimated these values from data on electrical, water, and sewer hook-ups in each of the towns during the study period. The population was assumed to grow roughly in proportion to increased numbers of hook-ups. While this information leaves much to be desired in terms of precision, it is the best available.



TABLE 4-15. Population of incorporated towns in McLean County, 1970-1976.

Name of Town	Distance from Plant Site	Percent of Construction Workers in Residence <sup>2</sup>	Population			<u>Net Change</u> 1975-76
			1970 <sup>1</sup>	1975 <sup>2</sup>	1976 <sup>2</sup>	
Underwood	6	12%	781	725	972	+247
Washburn	8	11%	804	850	969	+119
Cole Harbor	16	neg.	78	126	170	+ 44
Wilton	22	1%	695	608	771	+163
Turtle Lake	24	1%	712	743	753	+ 10
Garrison	28	5%	1614	1522	1645	+123
Mercer	31	neg.	132	166	203	+ 37
Max	34	1%	301	334	358	+ 24
Ruso	47	neg.	15	15	15	0
Benedict	53	neg.	72	101	111	+ 10
Butte	57	neg.	193	271	295	+ 24

<sup>1</sup>U.S. Department of Commerce, Bureau of Census, 1970 Census of the Population.<sup>2</sup>University of Wyoming estimates.

TABLE 4-16. Population of incorporated towns in Platte County, 1970-1976.

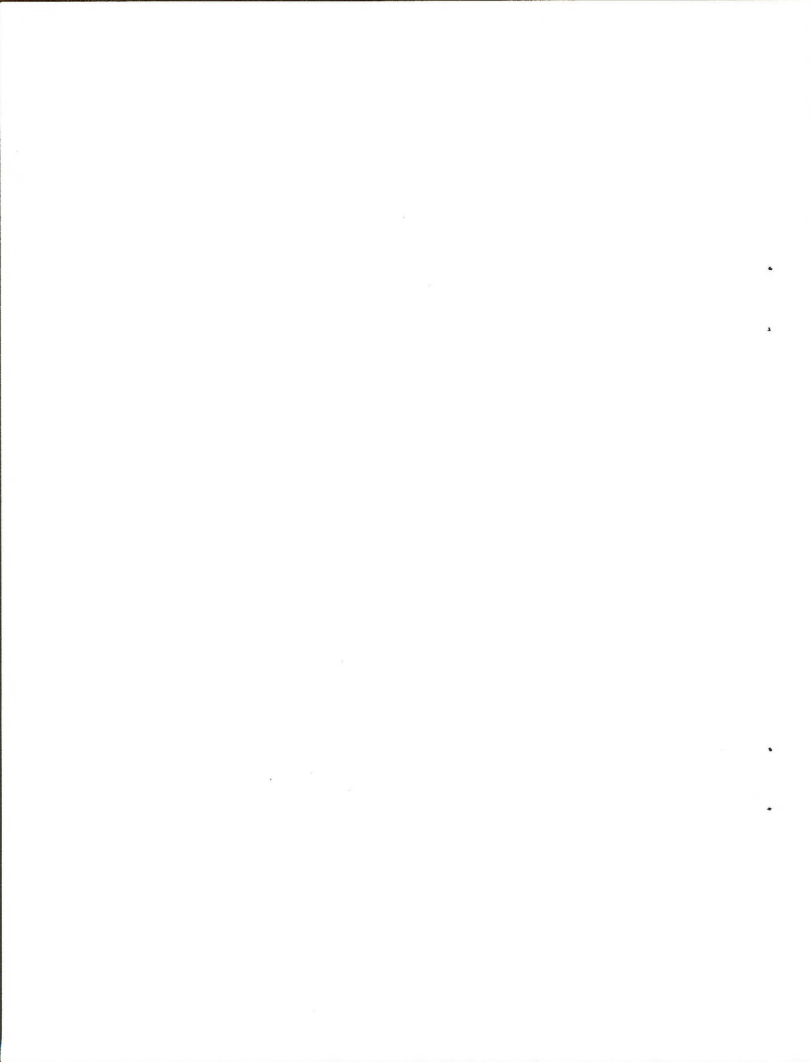
Name of Town	Distance from Plant Site	Percentage of Incoming Construction Workers in Residence	Population			Net Change 1975-1976
			1970 <sup>1</sup>	1975 <sup>2</sup>	1976 <sup>3</sup>	
Wheatland	5	87%	2498	2900	3600	+700
Guernsey	18	--	793	800	885	+ 85
Hartville	20	--	246	250	275	+ 25
Chugwater	30	--	187	185	190	+ 5
Glendo	39	2%	210	210	350	+140

<sup>1</sup>U.S. Bureau of Census, 1970 Census of the Population.

<sup>2</sup>The Socioeconomic Impact of the Proposed Laramie River Station, Division of Business and Economic Research, University of Wyoming, August 1976.

<sup>3</sup>University of Wyoming Estimates.

Wheatland's population has increased by approximately 700 persons since construction of the plant began. The population of Guernsey has increased by approximately 85 persons, Hartville by 25 persons, Chugwater by five persons, and Glendo by 140 persons. The population increase in Glendo is partially attributable to factors other than the Laramie River Station as discussed Section 4.3



## CHAPTER 5

### TRADE AND SERVICES

#### 5.1 Introduction

In the previous chapter, changes in population and employment were discussed for each of the counties being monitored. In this chapter, we take a more detailed look at a specific subsector of the economy of each county. Specifically, we examine changes in wholesale and retail trade and service sectors of the local economies.

Trade and services are referred to as "service" or "induced" industries because they generally do not bring large amounts of outside money into a local economy. Instead, they play a very important role providing goods and services to the indigenous population in an area. Trade establishments are primarily engaged in the sale of goods, such as food and gasoline, while service establishments provide a variety of services ranging from television repair to dental work.

Although it is well-known that the population influx associated with the construction of energy facilities stimulates business in the local trades and services, the exact nature of this stimulation has not been well documented. Questions remain for which definitive answers are not available: Do wages and prices in trade and service businesses increase dramatically as a result of increases in demand? Does the demand for goods and services lag significantly behind the population build up of impacted counties? Do increased sales result in the expansion of existing businesses, or the creation of new businesses?

In this chapter we present our tentative findings relative to these questions for the first year of the monitoring effort. Since these results are based mainly upon survey data, they are subject to error. In this case, however, the error is not of a "statistical" or "random" variety, which allows the use of confidence limits on the estimates. Since a complete census of all businesses (excluding farms and ranches) was attempted in the four counties, the source of error, or bias, in the sample results is that of nonresponse. The response rate to the mail survey of businesses ranged from a low of 29 percent in McLean County to a high of 47 percent in Platte County. As the study proceeds, it will be possible to check the accuracy of the survey data against secondary source information as it becomes available.

## 5.2 Summary of Findings

Our survey of businesses indicates that both McLean County and Platte County experienced significant increases in sales in the trade and service sectors from 1974 to 1975. This finding contrasts with the situation in the two control counties, where only minor changes in sales patterns were observed during the same time period. It is particularly interesting to note that retail sales in Platte County increased almost 30 percent from 1974 to 1975, long before construction actually began on the power plant. However, as noted in Chapter 4, significant economic activity in anticipation of the plant was under way in Platte County during 1975.

The other tentative findings in this chapter tend to contradict some widely held beliefs concerning the impact of energy facilities. First, while sales of goods and services increased in the impact counties, prices for goods and services in those counties differ only slightly

from those in the control counties. Second, although wage rates from 1975 to 1976 rose slightly more in the test counties than in the control counties, the increase is not excessive. Finally, it appears that during the early stages of construction, sales increases accrue mainly to existing businesses, as opposed to new trade and service establishments. However, this pattern may change as construction at each site proceeds.

### 5.3 Number of Establishments

One of the objectives of this study is to monitor changes in the number of new wholesale and retail businesses in each county. The number of establishments in each county was determined during the summer 1976 (Table 5-1). Comparison of the 1972 Census of Wholesale Trade<sup>1</sup> and the 1972 Census of Retail Trade<sup>2</sup> with the results of our 1976 survey indicates that there has been a small net increase in the number of establishments in all four counties. Comparisons involving the 1972 Census of Selected Service Industries<sup>3</sup> are not appropriate, since it describes only a subset of service establishments in each county.

Our preliminary data show only slight increases in the number of trade establishments in the impacted counties which indicates that existing businesses are reaping the major benefits from an increase in sales.

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<sup>1</sup>U.S. Department of Commerce, Bureau of Census, 1972 Census of Retail Trade.

<sup>2</sup>U.S. Department of Commerce, Bureau of Census, 1972 Census of Wholesale Trade.

<sup>3</sup>U.S. Department of Commerce, Bureau of Census, 1972 Census of Selected Service Industries.

TABLE 5-1. Number of trade and service establishments in test and control counties, 1972-1976.

County	Trade Establishment		Percent Change 1972-76	Service Establishments	
	1972 <sup>1</sup>	1976 <sup>2</sup>		1972	1976 <sup>2</sup>
McLean	186	198	+6%	NA	129
Platte	132	136	+3%	NA	113
Kimball	121	124	+2%	NA	76
Wheatland	51	54	+6%	NA	34

NA = Not Available

<sup>1</sup>U.S. Department of Commerce, Bureau of the Census, 1972 Census of Retail Trade and 1972 Census of Wholesale Trade.

<sup>2</sup>University of Wyoming Estimates.

#### 5.4 Sales Per Establishment

Sales patterns for trade and service establishments in the four counties are analyzed in Table 5-2. Wholesale and retail sales per establishment in both McLean and Platte Counties increased 27-30 percent from 1974 to 1975. Corresponding changes in the control counties range from one to four percent.

Sales per service establishment also increased 26 percent in McLean County during the same period, but increased only five percent in Platte County. However, sales per service establishment in both control counties declined during the same period. The larger increase in McLean County suggests the possibility that there may be more of a lag in increases in service sales than in wholesale and retail trade, since Platte County appears to be lagging behind McLean County in this respect.



TABLE 5-2. Sales per establishment in test and control counties, 1974-1975.<sup>1</sup>

County	Trade Establishment			Service Establishments		
	1974	1975	Percent Change	1974	1975	Percent Change
McLean	\$628,000	\$800,000	+27%	\$27,000	\$34,000	+26%
Platte	184,000	240,000	+30%	43,000	45,000	+ 5%
Kimball	491,000	510,000	+ 4%	62,000	61,000	- 2%
Wheatland	137,000	139,000	+ 1%	42,000	36,000	-14%

<sup>1</sup>Source: University of Wyoming Estimates.

TABLE 5-3. Average hourly wages in test and control counties, 1975-1976.<sup>1</sup>

County	Trade Establishment			Service Establishments		
	1974	1975	Percent Change	1974	1975	Percent Change
McLean	\$3.11	\$3.21	+ 3%	\$2.57	\$2.84	+11%
Platte	2.72	3.03	+11%	3.54	3.92	+11%
Kimball	2.90	3.05	+ 5%	2.72	2.92	+ 7%
Wheatland	2.60	2.58	- 1%	2.25	2.35	+ 4%

<sup>1</sup>University of Wyoming Estimates.

Prior socioeconomic studies for Platte or McLean County do not project annual sales estimates for the trade and service sector. However, for Platte County, the following generalization was made: "It is projected that the total increase in retail trade and service expenditures at peak construction levels would fall between 10 million and 15 million dollars annually."<sup>4</sup> This projection, for the peak impact year of 1980, compares with an estimated increase of \$6.5 million in sales from 1974 to 1975. The projected figure includes only the influence of the Laramie River Station on retail sales in constant 1975 dollars. The survey figure, however, includes inflation, other economic factors and whole-sale transactions.

In McLean County, we estimate that sales in the trade and service sectors increased by almost \$35 million between 1974 and 1975. This figure is far in excess of the average annual increase of \$8.37 million projected by Toman, N. E. et al.<sup>5</sup> The great disparity between these actual and projected figures will require further research to determine its cause.

#### 5.5 Wage Rates

Wage rates in trade and service establishments in the four counties under study are compared in Table 5-3. Although wage rates generally rose at a faster rate in impacted counties than in control counties, the

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<sup>4</sup>The Socioeconomic Impact of the Proposed Laramie River Station, Division of Business and Economic Research, University of Wyoming, Laramie, WY, August 1975, p. 88.

<sup>5</sup>Department of Agricultural Economics, Economic Impacts of Construction and Operation of Coal Creek Electrical Generation Complex and Related Mines, North Dakota Agricultural Experimental Station, North Dakota State University, Fargo, ND, May 1976.

difference is not as great as might be expected, certainly not as dramatic as increases of sales per establishment in the impacted counties. In fact, the greatest increase in wage rates estimated for any county from 1975-1976 was 11 percent. This increase was only slightly greater than the eight percent increase in the Consumer Price Index measured on a nation-wide basis.<sup>6</sup> Although the absolute level of wages in the counties appears to vary somewhat, we attribute this fact more to the different mix of businesses in each county than to the fact that wages for similar businesses differ significantly among the counties.

#### 5.6 Retail Prices

Population and income increases associated with large construction projects are commonly believed to rapidly escalate prices of retail goods and services. To test this hypothesis, during September 1976 we instituted a price monitoring system in each of the four counties. We intend to annually monitor prices during the remainder of the study.

Price monitoring in this study does not involve the computation of a "cost of living" index. Such an index requires detailed analyses of disposable income allocations among all different types of goods and services, an effort beyond the scope of our study. Instead, we selected a representative set of retail goods purchasable at the local level, and will follow price changes over time. Initially, an attempt was made to also monitor services, such as for health care, repair work, and related items. However, there is a wide disparity in the services available in these basically rural counties, making comparisons unrealistic.

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<sup>6</sup> See U.S. Bureau of Labor Statistics, Monthly Labor Review, U.S. Department of Commerce, Washington, D.C.

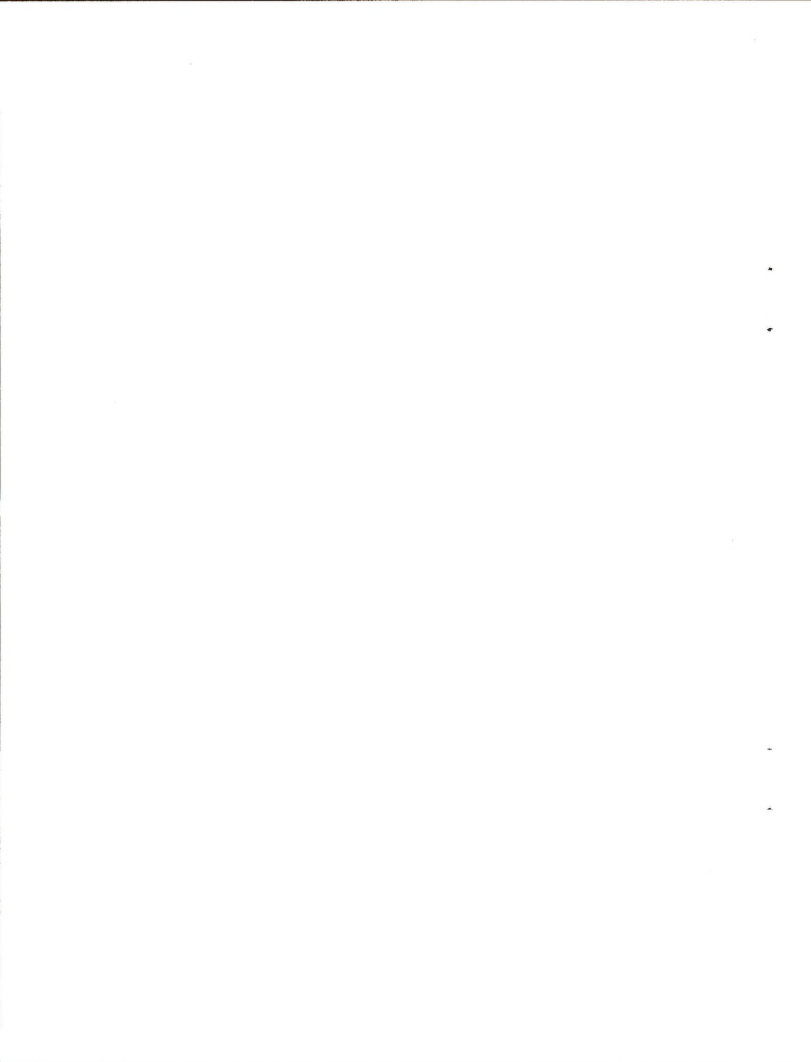
Prices were monitored for five categories of retail trade items, including supermarket goods, apparel, drugs and related items, liquor, and restaurant meals. Estimated costs for new housing construction were obtained from local bankers based on figures they use to compute mortgage values.

Relative indices, presented in Table 5-4, were computed for each category of items by averaging their prices in all four counties and assigning the area a value of 100. The relative prices among counties were then expressed in terms of an index relative to the average for all counties. For example, the first row of Table 5-4 shows that supermarket items in McLean and Wheatland County were approximately three percent higher than the overall average, and corresponding prices in Platte and Kimball counties were approximately three percent lower.

Overall, the results in Table 5-4 indicate retail prices in the two impact counties are not out of line with those in the control counties. In fact, the combined price index in Wheatland County, Montana, a control county, was almost six percent higher than the average of other counties. Platte County's overall prices were only slightly higher than average. The only exception to this pattern involves the cost of new housing in McLean County, which is much higher than in any of the other counties studied. Prices for new housing construction in Platte County were below average when the study was undertaken, but land prices in and around the Wheatland area have risen dramatically in recent months. This fact is not reflected in the construction cost figures presented.

TABLE 5-4. Comparison of relative indices for selected commodity prices in test and control counties, September 1976.

Description	Prices by County			
	McLean	Wheatland	Platte	Kimball
Supermarket Items	102.8	103.1	97.1	97.0
Apparel	95.9	109.6	100.5	94.0
Drugs and Related Items	96.4	113.2	93.3	97.0
Liquor	105.6	94.6	97.9	101.9
Restaurant Meals	85.2	93.7	123.7	97.4
All Goods	96.8	105.6	101.5	96.0
New Housing Cost (sq. ft.)	113.8	91.1	94.3	100.8



## CHAPTER 6

### HOUSING PATTERNS AND PREFERENCES

#### 6.1 Introduction

Knowledge of distributional patterns and consumer preferences for housing in impacted areas of the Old West Region is incomplete. Considering the relatively large size of the transient work force necessary to build electric generating plants, it is important to know the housing types desired and used by these groups. Such housing includes mobile homes, apartments, and single family dwellings. Similarly, it is important to know the housing choices of the permanent work forces who maintain and operate completed plants.

To better understand these patterns and preferences, two surveys were conducted in the summer of 1976. One surveyed the construction work forces at the Coal Creek Station and Laramie River Station (see Chapter 4). The second surveyed the permanent work forces at two power plants in Wyoming. The results of the housing portions of these surveys are presented in Section 6.4. Since the type of housing chosen by incoming workers is partially a function of housing availability, Section 6.3 first presents efforts currently underway to meet new housing demands in Platte and McLean Counties. In Section 6.5 we discuss housing patterns in all four counties being monitored, and Section 6.6 summarizes residents' attitudes toward housing accommodations in each county.

## 6.2 Summary

The supply of housing in impact areas is dependent on pre-construction planning. Platte County presently has a housing surplus, while McLean County has had a tight housing market for almost two years.

Housing projections from the two impact studies were reasonably close to the number and types of housing actually chosen by incoming populations with one exception: the number of workers choosing "temporary" housing (e.g., boarding rooms, motel rooms or recreation vehicles -- excluding mobile homes), was higher than either study predicted. Approximately 30 percent of incoming construction workers chose temporary housing accommodations in both impacted counties. Given the fact that alternative housing, including mobile homes and mobile home spaces, was available in Platte County, this figure indicates that there is a certain type of worker who chooses temporary housing because of his particular living needs.

The number of mobile homes also has increased substantially in the impacted counties. However, the mobile home stock has been increasing in the control counties also although at a slower rate.

## 6.3 Housing Developments in Impact Counties

This section presents how demands for new housing have been met in both Platte and McLean counties. In Platte County, the Missouri Basin Power Project (MBPP) has taken an active role in assuring that an adequate housing supply will be available to meet population increases in the area surrounding the plant site. Their action was motivated by an obvious need for new housing for an expected peak construction work force of approximately 2,000 workers in 1980. In addition, the Wyoming Industrial Siting Council required the MBPP to demonstrate that



construction of the Laramie River Station would not harm the health and welfare of the local residents (See Chapter 2). One way in which the MBPP attempted to meet this requirement was by financing development of an extensive housing program.

Table 6-1 shows the status of the MBPP housing program as of December, 1976. At this time there were many housing accommodations of various types available in the county, particularly mobile home pads. Of the 508 pads available for occupancy during December, only nine were occupied.

The overall scope of the project's housing program consists of 1125 total units, nearly half of these being mobile home pads. The remaining units consist of over 300 pads for recreational vehicles and campers, almost 50 single family dwellings, and 50 mobile homes for rent on lots. Contingency plans exist to increase the number of mobile home pads and build apartment units if needed. MBPP anticipates, however, that the private housing market will provide for housing demand in excess of that presently supplied by the project.

The MBPP housing program is being developed totally within the city of Wheatland, approximately five miles southwest of the plant site. This plan was developed to confine most of the population increase to Wheatland, so that impact alleviation measures could be concentrated rather than spread through the area. The plan has benefited the town in some ways. Newly imposed utility hookup fees of \$750 for single family dwelling and \$500 for apartments and mobile home pads were prepaid to the town by the power project for the developments shown in Table 6-1. These prepayments provided over \$350,000 to the city for fiscal 1977. Had housing been decentralized throughout the county, this sum would not have been available.

TABLE 6-1. Housing stock financed by the Missouri Basin Power Project as of December 31, 1976.

	Available	Occupied	Vacant	Proposed	Total Planned
Mobile Homes on Pads	50	33	17	0	50
Mobile Home Pads	508	9	499	0	508
Single Family Homes	3	2	1	46	49
Apartments	0	0	0	0	0
Bachelor Housing	0	0	0	204	204
Recreation/Camper Pads	<u>50</u> <sup>1</sup>	<u>17</u>	<u>33</u>	<u>314</u>	<u>314</u>
TOTAL	611	61	550	564	1125

<sup>1</sup>These fifty recreation/camper pads will be phased out when the proposed 314 pads come on line and are therefore, not included in the total planned (1125).

In addition to the housing described above, private developments have added a total of almost 50 new single family dwellings and a number of trailer pads in the county during 1976. Private developers have platted almost 800 lots which have been approved for future housing in the county. Thus, it appears an adequate supply of housing will be available for the projected population influx. As of December, 1976, the only type of housing in short supply in the county was apartments.

In contrast to Platte County, no large-scale housing developments existed in McLean County prior to the start of construction of the Coal Creek Station in the summer of 1975. Instead, following the start of construction, a number of smaller, private housing developments have been built in several small communities surrounding the plant site. In Underwood, the closest town to the plant site, approximately 12 new single family dwellings and 64 mobile home pads were developed and occupied by the fall of 1976. In Washburn during late 1976, a small apartment complex with 12 units was completed. Other towns in the area, including Garrison, Turtle Lake and Wilton, have also had small housing developments constructed in recent months. A number of other housing developments are currently planned for McLean County, and significant amounts of new housing will probably become available within the next year.

The major difference in housing availability between Platte and McLean counties is the lack of large scale housing developments by the energy company in the latter. This has led to a situation in McLean County where private developers have responded to housing demands. As a result, a tight housing market has existed since construction of the power plant began. In contrast, Platte County has had a housing surplus, at least in terms of mobile homes and mobile home pads, since construction began.

#### 6.4 Housing for Construction and Permanent Work Forces

Types of housing chosen by construction workers moving into McLean and Platte counties are given in Table 6-2. Over 35 percent of the incoming construction workers to McLean County during 1976 chose single family dwellings or apartments as housing accommodations. The corresponding figure for Platte County is only 16 percent, but the percentage of workers living in mobile homes or temporary housing is higher in Platte County than in McLean County. These figures are a reflection of housing availability at the time our surveys were conducted.

TABLE 6-2. Type of housing chosen by incoming (non-local) construction workers in impacted counties, 1976.<sup>1</sup>

Type of Housing	McLean County		Platte County	
	Number	Percent	Number	Percent
Single Family	16	17%	6	6%
Apartment	20	21	10	11%
Mobile Home	29	30	39	42
Temporary <sup>2</sup>	31	32	25	27
Unknown	<u>0</u>	<u>0</u>	<u>13</u>	<u>14</u>
TOTALS	96	100%	93	100%

<sup>1</sup>Source: University of Wyoming estimates from survey data.

<sup>2</sup>Includes recreational vehicles, motels, boarding rooms, etc.

In both counties it is interesting that a relatively high percentage of construction workers live in temporary housing. In September 1976, 96 workers had moved to McLean County to work on the plant. Of these, 32 percent lived in temporary housing. In Platte County, 27 percent of the 93 incoming workers lived in temporary housing as of December 1976.

Of the 25, 15 lived in recreational vehicles, and 10 lived in motel rooms.

In Table 6-3 we compare the actual distribution of housing types among construction workers to the projections of housing mix contained in impact statements made prior to construction period. The study by Toman, et al. for the Coal Creek Station assumed that 20 percent of the incoming construction workers would live in single family dwellings, 20 percent in apartments, and 60 percent in mobile homes. Their assumptions were quite close to the actual distribution, except for the mobile home category. Instead of 60 percent of the workers living in mobile homes, 30 percent lived in mobile homes and 32 percent in motel rooms, an option not discussed in that report.

TABLE 6-3. Actual and projected distribution of housing for construction workers in impacted counties, 1976.

Type of Housing	McLean County		Platte County	
	Actual <sup>1</sup>	Projected <sup>2</sup>	Actual <sup>1</sup>	Projected <sup>2</sup>
Single Family	17%	20%	8%	3%
Apartments	21	20	13	14
Mobile Homes	30	60	49	61
Temporary <sup>4</sup>	<u>32</u>	<u>--</u>	<u>30</u>	<u>22</u>
TOTALS	100%	100%	100%	100%

<sup>1</sup>University of Wyoming survey data.

<sup>2</sup>Toman, N., et al., Economic Impacts of Construction and Operation of the Coal Creek Electrical Generation Complex and Related Mine, Department of Agricultural Economics, North Dakota State University, Fargo, N.D., May 1976.

<sup>3</sup>Division of Business and Economic Research, The Socioeconomic Impact of the Proposed Laramie River Station, University of Wyoming, August 1975.

<sup>4</sup>Includes recreation vehicles, motels, etc.

In Platte County, projections of housing mix for construction workers varied from year to year and included temporary housing. When the projections for 1976 are compared to the actual distribution as of December 1976, the results are reasonably close. However, this study also underestimated the relative number of construction workers living in temporary housing.

In interpreting this data, it must be noted that housing choices among construction workers are a function of housing availability around the plant site, a factor discussed in the previous section. Since there were a number of vacant mobile home pads in Platte County during the fall of 1976, the fact that 30 percent of the construction workers lived in temporary quarters is not a reflection of the scarcity of trailer space. Also, the percentage of construction workers living in temporary quarters in McLean County was virtually identical to that in Platte County, although there were relatively few trailer spaces available in McLean County during 1976.

A survey of permanent workers was carried out at two Pacific Power and Light projects in Wyoming during 1976: the Jim Bridger Project near Rock Springs and the Dave Johnston Project near Glenrock. Housing choices for workers at both projects are presented in Table 6-4. The housing differences between the Dave Johnston Project and the Jim Bridger Project are mostly due to the fact that the Dave Johnston Project has been in existence for 15 years longer, and there is a shortage of single family homes at the Jim Bridger site. The survey indicated over 95 percent of all employees prefer to own a single family house. It is interesting to note, however, that 15 percent of the workers at Dave Johnston own a mobile home. Economic considerations, therefore, may force a portion of the permanent work force to live in mobile homes.

TABLE 6-4. Permanent employee distribution by type of housing at two Wyoming power plants.<sup>1</sup>

Type of Housing	Dave Johnston Project			Jim Bridger Project		
	Mine	Plant	Total	Mine	Plant	Total
Own House	72%	69%	70%	34%	44%	38%
Own Mobile Home	15	15	15	31	24	28
Own Apartment	2	1	1	1	0	.5
Own Other	2	2	2	2	0	1
Rent House	4	8	6	10	8	9
Rent Apartment	4	5	5	8	10	8
Rent Mobile Home	0	1	1	14	15	14
Rent Other	0	0	0	1	0	1
Number responding	47	106	153	147	89	236

<sup>1</sup>Thompson, James G. and Robert Kimble, 1976, "Demographic, Residential, and Employment Characteristics of Permanent Work Forces at Two Electrical Generating Plants in Wyoming," University of Wyoming, Laramie, Wyoming, 1976.

#### 6.5 Overall Housing Patterns

In this section we discuss the changes in housing patterns in the four counties under study during the period 1950 through 1976. Table 6-5 shows total housing stock, and the percentage of the stock that was mobile homes for each of the counties during that period. In general, there has been a trend for relatively stable, or slightly declining housing stock in the counties from the period 1950 through 1970. The exception was Kimball County, where total housing stock rose, largely because of activity associated with the installation of missile sites in the county.

TABLE 6-5. Changes in housing stock in test and control counties, 1950-1976.

Description	1950	1960	1970	1976
Kimball Housing Units (Percent Mobile Homes)	1397 (2%)	2396 (22%)	2064 (13%)	2000 (11%)
McLean Housing Stock (Percent Mobile Homes)	5356 (6%)	4723 (2%)	4282 (4%)	4500 (9%)
Platte Housing Stock (Percent Mobile Homes)	2737 (2%)	2631 (3%)	2440 (7%)	3050 (18%)
Wheatland Housing Stock (Percent Mobile Homes)	1032 (2%)	1053 (1%)	1009 (5%)	1050 (9%)

Sources: 1950, 1960 and 1970: U.S. Department of Commerce, Bureau of the Census, Censuses of Housing. 1976: University of Wyoming estimates.

Mobile homes have generally increased as a relative component of total housing stock. This trend is particularly apparent in Kimball County because of the itinerant nature of the workers there during the 1960's. We estimate that the total housing stock in 1976 for both McLean and Platte Counties had risen significantly above 1970 levels, in contrast with the two control counties. Furthermore, mobile homes as a percentage of the total have more than doubled in both impacted counties. However, only in Platte County was the percentage of mobile homes to the total considerably greater than in the control counties. Lower percentages in McLean County are attributed to the lack of mobile home spaces in McLean County when construction of the plant began and the large number of the construction work force commuting from outside the county. The trends shown in the above table will be monitored throughout this study.



## 6.6 Housing Preferences

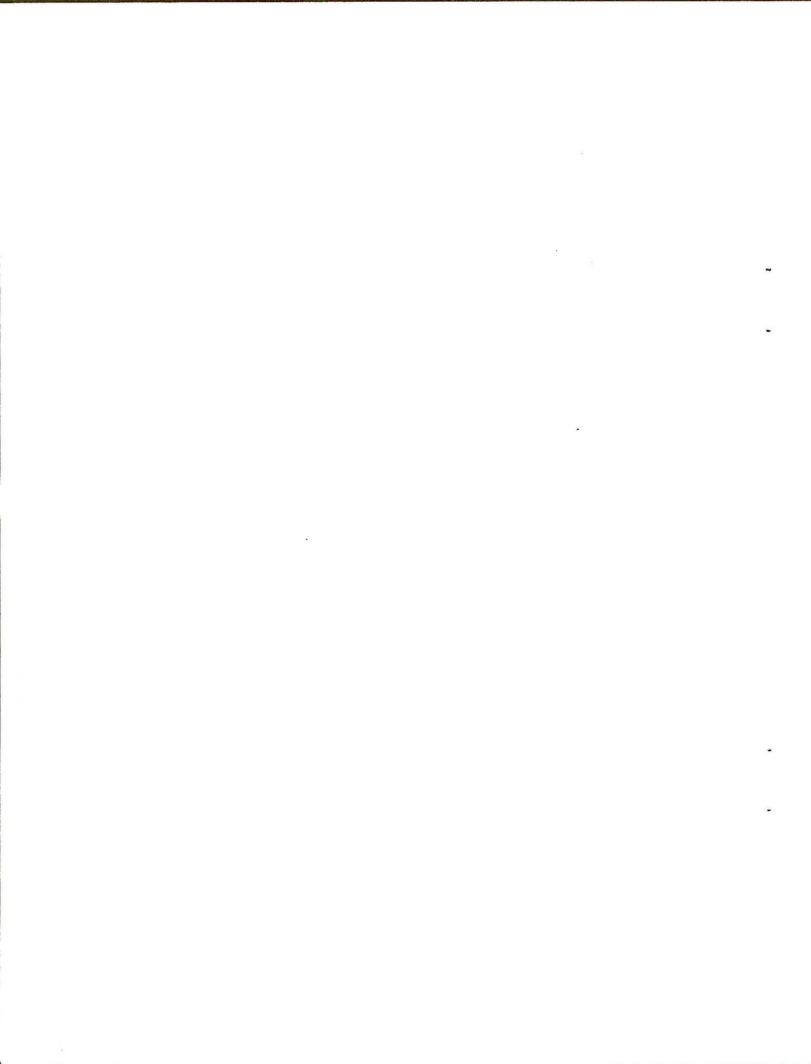
As a part of the household survey conducted during 1976, respondents were asked if they would prefer to live in some form of housing other than their current residence. Those who had a preference were asked to specify where they would rather live. The results are given in Table 6-6.

In the three counties (Platte was not surveyed in 1976) the majority of residents indicated they would prefer to live in single-family homes. In each of the counties over 10 percent of the respondents were not satisfied with their present housing and would prefer to live in single-family units. Because the percent desiring, but not having single family dwellings, is as high or higher in the control counties as in the impact counties, we assume this implied shortage is not due to sudden growth. Rather, a percentage (roughly 10 percent) of the respondents in all the counties simply cannot afford to buy a single-family dwelling. The high percentage of respondents preferring apartments in Wheatland County indicates there may be a shortage of apartments there.

TABLE 6-6. Housing preferences of county residents in fall 1976.

	Kimball	McLean	Wheatland
Percent satisfied with current housing	86	82	74
Percent dissatisfied (would prefer to live in)			
Single-family house	10	11	14
Apartment	1	4	10
Other	<u>3</u>	<u>3</u>	<u>2</u>
TOTAL <sup>a</sup>	100	100	100

<sup>a</sup>Components may not add to 100 percent due to rounding.



## CHAPTER 7

### COUNTY SERVICES, REVENUES AND EXPENDITURES

#### 7.1 Introduction

The effect of energy development activities on the level and cost of public services and general government activities is a crucial concern in any study of impact. This chapter is the first of three dealing with impacts on county, municipal and school services.

Some prior impact studies in the Old West Region have assumed that per capita costs for public services remain constant as population increases. Thus, to estimate future public expenditures for an area experiencing growth, population estimates were multiplied by per capita public service costs.<sup>1</sup> In reality, however, a spectrum of economies or diseconomies of scale<sup>2</sup> may exist for different public services. Unfortunately, little empirical data is available on which to base estimates of the actual costs in rural areas for various public services under different growth conditions.

The problem is compounded by the fact that expenditures are usually determined by available revenues, not by service needs. Thus, the political subdivisions in the Old West Region often provide public services according to what they can afford, not according to what their citizens may need or want. Thus, analyses of expenditures alone in

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<sup>1</sup>For example, see Toman, N., et al. (1976).

<sup>2</sup>Economies of scale occur when unit costs decline with rising output; with diseconomies, these costs increase.

impact situations can provide misleading insights into what are the actual levels of demand/need for public services in growing communities. For this reason, in Chapter 10 we analyze the subjective ratings of local residents of each county toward the services available to them.

In this chapter we focus on changes in service loads, revenues and expenditures for public services available on a county-wide basis. Although projections of these changes were made in prior impact studies, it is too early to assess their validity. Projections for McLean County are averages for the entire construction period.<sup>3</sup> Projections for Platte County begin with fiscal year 1977, for which data is not available at this time.<sup>4</sup>

## 7.2 Summary of Findings

During the two year period from June 30, 1974 through June 30, 1976 (fiscal years 1975 and 1976) total county expenditures increased from a low of eight percent in Platte County to a high of 65 percent in McLean County. The period for which these expenditures were analyzed includes the first year of construction of the Coal Creek Station in McLean County, but is prior to the start of construction of the Laramie River Station in Platte County.

Excluding road and bridge expenditures, McLean County expenditures rose only 21 percent during this period, which was lower than the rate of increase in one of the control counties. Thus, the construction of the Coal Creek Station has had little impact upon overall McLean County expenditures for other services. However, it appears that the reason that expenditures have not increased more in McLean County is that the

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<sup>3</sup>See Toman, N., et al. (1976).

<sup>4</sup>See Thompson, J. et al. (1975).

tax base (assessed valuation) of the county did not rise significantly during the first year of construction.

Law enforcement, however, is a budgetary category where expenditures did increase substantially in both Platte and McLean Counties from FY-75 to FY-76. During this period, expenditures rose 46 percent in Platte County and 165 percent in McLean County. These expenditure increases are attributable not only to increasing crime rates (see Chapter 10), but also to the need for a new jail facility and other items of equipment in McLean County. During the same period, law enforcement expenditures fell by five percent in Kimball County, and rose by 23 percent in Wheatland County.

Health services in McLean and Platte Counties appear to be less adequate than in the control counties because of the shortage of medical manpower. The ratio of population to physicians is higher in both impacted counties than in the control counties, and will become worse in the future unless recruitment efforts for new doctors are successful. Because of the shortage of manpower, hospital facilities in the two impacted counties have not been overtaxed. Instead, it appears that many residents have been forced to leave their local area for medical treatment.

Changes in public assistance payments from FY-75 to FY-76 do not appear markedly different between the two impacted counties and the one control county for which information is available. However, the administrative costs associated with social service agencies in the impacted counties increased at a markedly greater rate than in the control county.

### 7.3 County Expenditures

County governments in the Old West Region provide services to citizens on an area-wide basis that cannot be adequately provided by

municipal governments. Examples include maintaining county roads and bridges, providing law enforcement services in rural areas, and a variety of administrative services such as the county clerk's office and county treasurer's office. Since the services provided by county governments vary from state to state, and to a lesser extent among counties within a state, it is not meaningful to make direct comparisons of total expenditures from one county to another. However, it is meaningful to look at the rate at which expenditures change over time for impacted and non-impacted county governments.

Such a comparison is given in Table 7-1, which shows changes in expenditures for the four monitored counties for fiscal years 1975 and 1976. It should be noted that FY-76 ended June 30, 1976, prior to the start of construction of the Laramie River Station in Platte County. The data in Table 7-1 show that by far the largest increase in expenditures in any of the four counties occurred in McLean County, where total expenditures rose by 65 percent in one year. Corresponding increases in the other counties ranged from eight percent in Platte County to 29 percent in Kimball County.

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TABLE 7-1. Expenditures for county services: FY-75 and FY-76.

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County	Expenditures		Percent Change
	FY-1975	FY-1976	
McLean	\$1,570,400	\$2,595,000	+65%
Platte	744,800	802,300	+ 8%
Kimball	854,200	1,103,300	+29%
Wheatland	378,280	438,504	+16%

However, detailed examination of the McLean County budget for FY-76 indicates that most of the increased expenditures went for road and bridge improvements in the county. In fact, the county received special grants totaling approximately \$700,000 over normal appropriations to upgrade the roads and bridges in the county during that year. Excluding this special expenditure, McLean County expenditures for all other services including normal road and bridge repair, totaled less than \$1,900,000, an increase of about 21 percent over the previous year. Thus, expenditure increases for services other than road and bridges in the county were in line with those of Platte, Kimball and Wheatland Counties.

As mentioned in the introduction to this chapter, expenditures levels by governmental units do not necessarily reflect the true level of service needed in an area. Rather, they may simply reflect the level of funds available to county officials to spend during a certain time period. Since one of the major sources of revenue for county governments in the Old West Region is the property tax, a comparison of property tax revenues and the value of property upon which they are based is necessary. Table 7-2 gives such a comparison for the four monitored counties during fiscal years 1975 and 1976. The first three columns in the table indicate that assessed (or taxable) valuation (the value of property upon which tax revenues are based) changed very little in any of the counties during that period. In fact, the largest increase was in Kimball County, where assessed valuation rose by six percent from 1975 to 1976. In McLean and Platte Counties, assessed valuation rose one and two percent respectively, while it remained virtually constant in Wheatland County.

This finding is not surprising, since increases in assessed valuation seems to lag substantially behind increases in population and property value in growth situations. Typically, property is valued for tax purposes approximately six to eight months prior to a budgetary period; thus, the latest valuation data in Table 7-2 reflect property values during late 1975, shortly after construction began in McLean County and long before construction began in Platte County. It is anticipated that these assessments will change in the future.

The last three columns in Table 7-2 show changes in property tax revenues for each of the four counties. Interestingly, such revenues changed very little for the impacted counties, but increased by 15 percent or more in the control counties. The reason for this difference is that both impacted counties were imposing their maximum constitutional mill levies in both 1975 and 1976, thus resulting in very little change in revenues. Both control counties, however, were not levying their maximum rates during FY-75, and increased their mill levies substantially during FY-76.

A perspective of the importance of property tax revenues to county governments can be obtained from Table 7-3, which shows the percentage of each county's revenues obtained from property taxes and other sources during the two year period. During FY-75, property tax revenues accounted for a minimum of 39 percent of total revenues in Platte County, and a maximum of 78 percent of total revenues in Wheatland County. In each of the counties, property tax revenues accounted for a lower percentage of total revenues in FY-76 than in FY-75. This is especially true in McLean County, due to the special road construction grants of approximately \$700,000 mentioned previously.



TABLE 7-2. County assessed valuation and property tax revenues: FY-75 and FY-76.

County	Assessed (Taxable) Valuation			Property Tax Revenues		
	FY-1975	FY-1976	Percent Change	FY-1975	FY-1976	Percent Change
McLean	\$12,716,000	\$12,823,000	+1%	\$1,050,000	\$1,039,000	-1%
Platte	27,455,400	28,138,000	+2%	288,800	291,500	+ 1%
Kimball	32,150,000	33,972,700	+6%	426,600	519,600	+22%
Wheatland	5,287,000	5,284,600	0%	293,200	337,200	+15%

TABLE 7-3. Proportion of county expenditures paid by property taxes: FY-75 and FY-76.

County	FY-1975		FY-1976	
	Property Taxes	Other Sources	Property Taxes	Other Sources
McLean	67%	33%	40%	60%
Platte	39%	61%	36%	64%
Kimball	50%	50%	47%	53%
Wheatland	78%	22%	77%	23%

Although it is too early to develop a complete understanding of how county revenues and expenditures change in situations of rapid growth, it is apparent that increases in assessed valuation lag markedly behind population growth in impacted counties. Thus, any increases in expenditures must be based upon increased revenue from other sources. Such sources vary from state to state, and generally consist of two categories of funds. The first category is related to population or sales activities of an area, including sales taxes, gasoline taxes, motor vehicle registrations and others. The second source consists of special loans and grants, such as revenue sharing funds, mineral royalties distributions, or other redistributions from state and federal governments. In the case of the two impacted counties, the only significant increase in these types of revenues has been special highway grants received by McLean County.

#### 7.4 Law Enforcement

Expenditures in fiscal years 1975 and 1976 for the sheriff's departments in each of the four counties are presented in Table 7-4. The data indicate that both of the impacted counties experienced substantial increases in costs from FY-75 to FY-76. Total expenditures for the McLean County Sheriff's Department rose 165 percent during this period. A substantial amount of this increase is due to the fact that the McLean County Sheriff's Office contracts security services to the Coal Creek Station. The increase in normal operating costs was 70 percent while the rest of the increase is accounted for by the construction of a new county jail and the acquisition of new equipment, including patrol cars. One important factor in the increasing operating costs for

TABLE 7-4. Expenditures by the sheriffs' departments in the four study counties: FY-75 and FY-76.

County	FY-75	FY-76	Percentage Change FY-75-FY-76
<b>Platte</b>			
Normal Operating Expenses	\$ 45,500	\$ 66,600	46
Plant Security	0	0	--
Equipment	0	0	--
Capital Facilities	<u>0</u>	<u>0</u>	--
Total	\$ 45,500	\$ 66,600	46
<b>McLean</b>			
Normal Operating Expenses	\$125,200	\$212,800	70
Plant Security	0	30,000	--
Equipment	1,500	32,500	2,067
Capital Facilities	<u>0</u>	<u>60,000</u>	--
Total	\$126,700	\$335,300	165
<b>Kimball</b>			
Normal Operating Expenses	\$ 32,300	\$ 38,300	19
Equipment	10,100	2,000	-80
Capital Facilities	<u>0</u>	<u>0</u>	--
Total	\$ 42,400	\$ 40,300	- 5
<b>Wheatland</b>			
Normal Operating Expenses	\$ 45,900	\$ 56,500	23
Equipment	0	0	--
Capital Facilities	<u>0</u>	<u>0</u>	--
Total	\$ 45,900	\$ 56,500	23

the sheriff's department in McLean County was the need to make salaries competitive with construction worker salaries.

Normal operating expenditures for the sheriffs' departments in the other three counties also increased during this period. These increases, however, are smaller than those in McLean County and are primarily due to salary increases. It should be noted that the Kimball County Sheriff's Department's five percent decrease in total expenditures was the result of an 80 percent cut in the budget for equipment.

The overall pattern of the data shown in Table 7-5 suggests that the operating costs for sheriffs' departments are increasing in all four counties. The increases in the non-impact areas may be attributed to inflation, while the rising costs in the impact counties result from a combination of inflation, increased population sizes and competition with the energy developments for employees.

## 7.5 Health Services

### 7.5.1 Introduction

Health services in each of the four counties are provided by a mixture of public funds and private resources. In Platte County, a non-profit religious organization operates the one hospital and nursing home. It receives supplemental support from the county in terms of operating funds and capital facilities expenditures. Ambulance service is maintained by individual towns within the county.

The situation is similar in McLean County, where the two hospitals are operated by non-profit religious organizations, and ambulance service is provided by individual towns. In Kimball County, the county board operates the hospital, nursing home and ambulance services; while in

Wheatland County, the county maintains the ambulance service but the one hospital is maintained by a non-profit organization. In the following sections, separate facets of health services available to the citizens of each county are discussed.

#### 7.5.2 Hospital Services

The number of patients served by the hospitals in each county for fiscal years 1975 and 1976 is presented in Table 7-5. In-patient treatments declined eight percent in both control counties from 1975 to 1976, while remaining nearly constant in McLean County and increasing six percent in Platte County. Data on out-patient treatments are incomplete, but do show a marked increase in Platte County for 1975 to 1976. Overall, it is too early to draw definitive inferences concerning patient loads as a function of population growth, but this process will be monitored as the study proceeds.

A summary of hospital expenditures by county for fiscal years 1975 and 1976 are given in Table 7-6. Overall expenses rose by 56 percent in Platte County during the year, and actually declined by three percent in McLean County in the same period. The expenditure changes in control counties fell in between these two extremes. Although we presently have insufficient data to draw any conclusions, we should emphasize that hospital patient loads and expenditures only partially reflect the medical care in an area. If sufficient medical personnel are not available in a local area, then local hospitals will tend to be under utilized as patients go elsewhere for treatment. Also, rural areas in the Old West Region tend to be notably short of all types of specialized medical practitioners, forcing many patients to seek treatment in larger metropolitan areas.

TABLE 7-5. Number of hospital patients served by county: FY-75 and FY-76.

County	FY-75	FY-76	Percentage Change FY-75 to FY-76
McLean			
In-patients	2,290	2,280	0%
Out-patients	<u>4,050</u>	<u>NA</u>	<u>NA</u>
Total	6,340	NA	NA
Platte			
In-patients	1,270	1,350	+ 6%
Out-patients	<u>3,070</u>	<u>4,070</u>	<u>+33%</u>
Total	4,340	5,420	+25%
Kimball			
In-patients	1,790	1,650	- 8%
Out-patients	<u>1,340</u>	<u>NA</u>	<u>NA</u>
Total	3,130	NA	NA
Wheatland			
In-patients	510	470	- 8%
Out-patients	<u>2,800</u>	<u>2,620</u>	<u>- 6%</u>
Total	3,310	3,090	- 7%

TABLE 7-6. Summary of hospital expenditures by county: FY-75 and FY-76.

County	Expenditures		Percentage Change 75-76
	FY-1975	FY-1976	
McLean - Total	1,278,274	1,242,235	- 3%
Salaries	707,386	736,068	+ 4%
All Other Expenses	570,888	506,167	-11%
Platte - Total	524,590	816,124	+56%
Salaries	308,678	460,940	+49%
All Other Expenses	215,912	355,189	+64%
Kimball - Total	689,322	728,000	+ 6%
Salaries	374,027	396,322	+ 6%
All Other Expenses	315,295	331,678	+ 5%
Wheatland - Total	334,639	384,182	+15%
Salaries	154,439	178,510	+16%
All Other Expenses	180,200	205,672	+14%

TABLE 7-7. Average occupancy and length of stay in hospitals by county: FY-75 and FY-76.

	McLean		Platte		Kimball		Wheatland	
	1975	1976	1975	1976	1975	1976	1975	1976
Average occupancy	48%	50%	40%	38%	42%	45%	32%	27%
Average length of stay in days	6.0	6.2	4.9	4.5	3.8	4.2	5.6	5.2

Table 7-7 shows average occupancy and average length of stay for hospitals in each of the counties. In all cases, hospital facilities are under-utilized; their occupancy rates are 50 percent or less. All four counties can absorb significant population increases before exceeding their physical capacities. To the extent that population increases can be expected to increase hospital patients, the impact of population increases on hospital incomes should be beneficial. However, with the difficulty in recruiting and keeping physicians in rural areas, it is unlikely that any of the counties will develop pools of specialists. Cases requiring specialists will continue to be transferred to other areas, and hospital facilities are not likely to be strained in the near future.

#### 7.5.3 Nursing Homes

Kimball County has one nursing home with 75 beds. Wheatland County has one nursing home attached to the hospital and served by the same staff. Its occupancy rate is 97 percent. Platte County presently has a nursing home with a 24 bed capacity and is planning an additional wing to increase the capacity to 40 beds. McLean County has four nursing homes: two skilled nursing facilities and two intermediate care facilities. The two skilled nursing facilities have 71 and 64 bed capacities and are operating at maximum occupancy.

#### 7.5.4 Medical Manpower

Kimball County has three physicians, Wheatland County has two and Platte and McLean Counties each have four. However, three of the four in McLean County are near retirement and are attempting to decrease their workloads. Efforts to recruit new doctors have been made but have failed. Table 7-8 shows the physician-population ratio for the



TABLE 7-8. Physician to population ratio: 1976.

	County			
	McLean	Platte	Kimball	Wheatland
No. of Physicians	4	4	3	2
Physician/population ratio	1:3100	1:2085	1:1753	1:1200

four counties. Since the two impacted counties already have fewer physicians per population than the control counties, population growth can be expected to aggravate their relative shortage of manpower.

Kimball County presently has two dentists and Wheatland County has one. Platte has the services of four dentists; however, two of those commute from another town three days a week. McLean has only one dentist and he is about to retire.

Table 7-9 shows the dentist to population ratio in the four counties. McLean has a severe dentist shortage at present. Without the two commuting dentists in Platte, it also would have a worse ratio than the control counties. Given the difficulties in recruiting dentists, it is likely that the situation will worsen with increasing population.

TABLE 7-9. Dentist to population ratio: 1976.

	County			
	McLean	Platte	Kimball	Wheatland
Dentists	1	2-4 <sup>1</sup>	1.5 <sup>3</sup>	1
Dentist/population ratio	1:12,400	1:4170 <sup>2</sup> 1:2780	1:3057	1:2400

<sup>1</sup>Two resident dentists and two commuters.

<sup>2</sup>The top figure is computed using the two resident dentists and the bottom using three full time equivalent dentists.

<sup>3</sup>Kimball has two dentists but one does not practice full time.

#### 7.5.5 Mental Health Services

Mental health services in three of the study counties are operated under regional rather than county auspices. The exception to this is Platte County, which funds its own mental health facilities in Wheatland. Mental health services are supplied to Kimball County by the Panhandle Clinic in Scottsbluff, to Wheatland County by a regional center in Harlowton, and to McLean by mental health regional centers in Minot and Mandan (Regions II and III).

Because mental health services are funded mostly on a regional rather than a county basis, it was not possible at this writing to determine total costs for the services provided to the various counties. We were able to obtain the primary admitting diagnoses for active clients by county of residence which are summarized in Table 7-10.

Client caseloads increased in all counties except Kimball from 1975 to 1976. The major increases were in nonpsychiatric disorders such as alcohol related disorders, and social and marital maladjustments.

The last line in Table 7-10 shows active cases per 1,000 population. Although the absolute increase in mental health clients has not been large in any county, there does appear to be a much higher rate of disorder in the impacted counties. Whether this difference is due to differences in the population or differences in the mental health services in each area has not yet been determined.

#### 7.6 Social Services

Social service agencies in each of the four counties administer a variety of programs for their residents. Such programs include public assistance payments, food stamps, old age assistance, and a host of others. Currently, each social service agency receives a combination

TABLE 7-10. Primary admitting diagnosis of active clients for mental health services in the four study counties: FY-75 and FY-76.

Diagnosis	McLean		Platte		Kimball*		Wheatland	
	FY-75	FY-76	FY-75	FY-76	FY-75	FY-76	FY-75	FY-76
Alcohol Disorder	1	0	14	38	7	19	0	0
Drug Abuse	0	0	0	1	0	2	0	0
Mental Retardation	1	1	18	18	3	1	1	2
Depressive Disorder	5	6	3	3	17	25	3	1
Schizophrenia	0	0	34	31	4	12	0	0
Other Psychiatric Disorders	14	12	48	37	9	3	1	2
Non-psychiatric Disorders	2	3	24	23	180	177	6	22
Transient Situational Disturbances	15	11	18	22	0	0	0	0
Social Maladjustment	5	5	0	0	0	14	0	0
Marital Maladjustment			19	35	0	0	1	1
Other/Unknown	<u>5</u>	<u>2</u>	<u>44</u>	<u>67</u>	<u>0</u>	<u>14</u>	<u>0</u>	<u>3</u>
Total	48	40	222	275	220	267	12	31
Cases per 1,000 pop.	8.6	7.6	19.3	22.2	31.4	32.0	5.2	12.9

\*Admissions, not active cases.

of county, state and federal support. However, beginning in FY-78 Wyoming and Montana social service agencies will not receive any county support.

Data on social service case loads and administrative costs which are comparable between the counties are difficult to obtain. As of this writing, we have been unable to obtain any comparable data for Kimball County, so it is omitted from this report. A summary of social service administrative budgets for the other three counties for the period extending from FY-74 through 1976 are given in Table 7-11. The results show that both impacted counties experienced substantial increases in administrative budgets during the two year period. These increases ranged from 71 to 75 percent. It is interesting to note that administrative budgets in Platte County increased at a slightly faster rate than in McLean County, even though construction of the Laramie River Station had not begun until after FY-76. The single control county on which budget data are available shows a substantially lower rate of increase in administrative costs during the period.

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TABLE 7-11. Social service administrative budgets by county:  
FY-74 to FY-76.

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County	FY-74	FY-75	FY-76	Percent Change FY-74-FY-76
McLean	\$88,600	\$107,600	\$151,900	+71%
Platte	60,800	90,300	106,500	+75%
Kimball	NA	NA	NA	NA
Wheatland	11,800	12,700	13,800	+17%

---

The summary of public assistance cases for each of the three counties is given in Table 7-12. All three counties had caseload increases ranging from 13 to 24 percent over the two year period, but there is no clear separation between the patterns displayed by the impacted and control counties during that period. Interestingly, the number of public assistance cases in McLean County dropped during FY-76, the first year of construction at the Coal Creek Station.

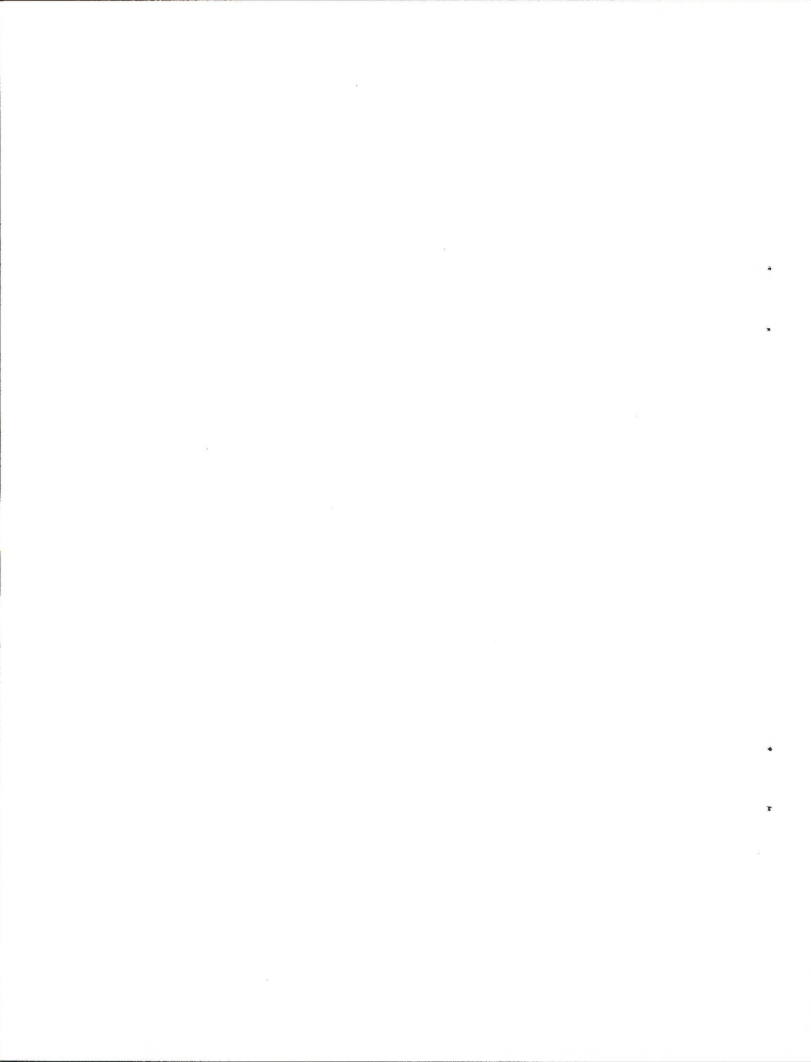
In summary, these results show that although social service administrative costs have risen markedly in both impacted counties over the past two years, numbers of public assistance cases handled in these counties have not increased at a rate markedly different than for the control county. This finding implies that many of the administrative tasks of social service agencies in impacted counties may have increased at a faster rate than public assistance payments. Such administrative tasks include counseling services for marital problems, adoption, foster care, child abuse investigations, and counseling for unwed mothers. Such activities require substantial amounts of staff time but usually do not involve payments to clients.

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TABLE 7-12. Summary of public assistance cases by county: FY-74 to FY-76.

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County	Average No. Cases Per Month			Percent Change FY-74-FY-76
	FY-74	FY-75	FY-76	
McLean	447	552	505	+13%
Platte	114	125	141	+24%
Kimball	NA	NA	NA	NA
Wheatland	72	82	85	+18%



## CHAPTER 8

### MUNICIPAL REVENUES, EXPENDITURES AND SERVICES

#### 8.1 Introduction

In this chapter we explore the impact of energy developments on municipal services, and financing mechanisms for those services. Although it is obvious that the demand for municipal services increases as population grows, several questions about the nature of this growth remain unresolved. First, do expenditures for municipal services grow faster than the rate of population growth, approximately proportional to it, or slower than the rate of population growth? Second, are the financing mechanisms available to municipalities adequate to finance expanded services for their citizens, or do additional financing mechanisms need to be found?

To answer these questions, fiscal flows for municipal services in five communities are being monitored. These communities are Wheatland, near the construction site of the Laramie River Station in Platte County; Underwood and Washburn, the two communities closest to the site of construction of the Coal Creek Station in McLean County; and Harlowton and Kimball, the county seats of the two control counties. We emphasized that interim results contained herein are incomplete; the latest financial data available at the time of this writing is for fiscal year 1976, which ended June 30, 1976. Thus, it is too early to provide definite answers to the questions posed above. Hopefully they will be forthcoming as the study proceeds.

## 8.2 Summary

Our interim analysis of municipal revenues, expenditures and services indicates that municipal operating expenditures have increased as much as 50 percent in some impacted North Dakota communities. The largest expenditure increases observed have been for public utilities, including water, sewer, sanitation and electricity. While all of the impacted communities have increased utility rates for these services to help pay for their expansion, these fees have not been increased in any of the control communities.

Police protection costs also have increased in the impacted towns. These increases have been for additional full- or part-time officers; new police equipment and supplies, such as patrol cars and electronic equipment; and expanded jail facilities. Such expenditure increases have exceeded 100 percent during a two year period for Underwood, North Dakota, and have been substantial in other impacted communities.

As the number of structures requiring fire protection increases in impacted towns, the cost for their protection also increases. Washburn, North Dakota switched from a strictly volunteer department to hiring full-time fire department personnel. As a result, the cost of fire protection in Washburn, ND increased 1400 percent following development at the Coal Creek site.

While normal municipal revenues also increase during energy development, preliminary data indicate that these increases are not at a rate sufficient to pay for the new expenditures. Since the capacity of most towns in the Old West Region to increase revenues to meet increasing expenditures is limited by state law, impacted communities have had to rely on special fees and grants to finance the cost of development.



### 8.3 Municipal Revenues and Expenditures

As is the case with other forms of government, municipal expenditure levels do not necessarily reflect demands or needs for services by community residents. Rather, they reflect how a community allocates the resources available to it among alternative programs. Whether municipal services meet the needs of a community often must be evaluated in subjective terms. A preliminary evaluation of this kind is presented in Chapter 10, which contains local residents' ratings of the services available to them. In this chapter, we concentrate primarily upon actual expenditure levels and available revenue sources.

Table 8-1 summarizes municipal operating expenditures for the five municipalities under study for FY-75 and FY-76. As the table shows, operating expenditures in the two North Dakota towns increased at a higher rate during this two year period than in Wheatland, Wyoming or the two towns in control counties. This difference is largely attributable to the fact that the Coal Creek Station in McLean was under construction during FY-76, whereas no energy development had begun in Platte County or the control counties.

In addition to operating expenditures, municipalities also must provide the capital facilities necessary to serve the needs of their residents. A summary of capital facilities commitments recently undertaken by each town is given in Table 8-2. This table shows the striking difference between the amount invested or to be invested in capital facilities between the impacted towns and control towns. Specifically, both North Dakota towns have undertaken several hundred thousand dollars worth of new capital improvements involving water and sewage systems, while Wheatland, Wyoming has undertaken over three million dollars worth

TABLE 8-1. Summary of operating expenditures for test and control towns, FY-75 - FY-76.

Town	Operating Expenditures		Percent Change
	FY-75	FY-76	
Underwood, ND	\$ 66,900	\$ 83,900	+25%
Washburn, ND	84,800	129,000	+52%
Wheatland, WY	794,000	936,000	+18%
Kimball, NE	1,128,600	1,307,000	+16%
Harlowton, MT	95,150	99,200	+ 4%

of capital improvements. The amount expended by the two control towns is insignificant by comparison.

These capital facilities commitments have placed heavy strains on revenue sources in the impacted towns. Unlike counties, most municipalities in the Old West Region do not derive major sums of money from the property tax. Table 8-3 shows the percentage of total revenues to each town attributable to property tax for FY-75 and FY-76. Only in Harlowton, Montana, do property tax revenues account for more than 20 percent of the total revenues.

Other sources of revenues for towns in the Old West Region fall into two general categories: various taxes on goods and services such as sales, cigarette, and gasoline taxes, and fees or charges for services such as water, sewer, and electrical services. Since the only revenue sources directly under the control of local authorities are charges for local services, they are likely to be increased. For example, Wheatland, Wyoming recently instituted utility hook-up fees for new residential housing ranging from \$500 to \$750 to help pay off the large bond issue described in Table 8-2.

TABLE 8-2. Capital expenditure commitments for test and control towns, FY-76 and FY-77.

City	Facilities	Bond Issue Total Amount	Annual Amount of Debt Retirement*
Underwood, ND	Water and Sewer Construction (Plus a \$88,000 Coal Impact Grant)	\$ 202,100	\$ 23,000
Washburn, ND	Water Treatment Plant (Plus \$585,000 in Coal Impact Grant)	625,000	35,000
Wheatland, WY	Water Treatment Facilities	866,000	
	Sewer Treatment Facilities	340,000	
	Electric Service	<u>1,651,000</u>	
	Subtotal	2,857,000	375,000
	(Other Capital Expenditures To Be Paid from Normal Revenues)		
	Sanitary Landfill	44,000	
	City Office Expansion	150,000	
	Police Patrol Cars	15,000	
	Fire Truck	<u>70,000</u>	
	Subtotal	279,000	
Harlowtown, MT	Water Well & Pump House (Plus \$10,000 for Water & Sewer, Paid for from Operating Revenues)	60,000	7,000
Kimball, NE	Various Purpose Bonds	30,000	5,000

\*These amounts are estimates based on interest rates and pay back periods.

TABLE 8-3. Property tax revenues as a percentage of total revenues for test and control towns, FY-75 - FY-76.

Town	<u>Percent Revenues from Property Tax</u>	
	<u>FY-75</u>	<u>FY-76</u>
Underwood, ND	16%	17%
Washburn, ND	13%	10%
Wheatland, WY	Negligible	Negligible
Kimball, NE	12%	16%
Harlowton, MT	51%	52%

A detailed listing of municipal operating expenditures and total revenues for each of the study towns is given in Table 8-4 through 8-8. It should be noted that in most cases revenue totals exceed operating expenditure totals in each of these tables. The difference between revenue and operating expenditure totals can be viewed as a sum available for capital facilities expenditures.

#### 8.4 Expenditures for Law Enforcement

From Tables 8-4 to 8-6 it is apparent that law enforcement costs for cities in McLean and Platte Counties have increased markedly in the first years of development. The cities in McLean County are unusual because they do not supply their own police protection but rather contract with the McLean County Sheriff's department which supplies police protection to all towns in the county on a contract fee basis. The contract fee for Underwood increased by over 100 percent in 1975 (Table 8-4). The fee for Washburn did not increase until FY-76, but then increased by about 50 percent. In addition, the county costs for the Sheriff's department increased significantly in FY-76 (see Chapter 7). Jail facilities were remodeled and expanded and several new patrol cars were purchased for a

TABLE 8-4. Budget summary for Underwood, ND, FY-74 to FY-76.

	FY-74	FY-75	FY-76	Percent Change	
				FY-74-75	FY-75-76
<u>Operating Expenditures</u>					
General Administration	\$ 11,700	\$ 11,400	\$ 14,500	-3	27
Law Enforcement	5,000	10,900	13,000	118	19
Fire Protection	200	0	0	-100	0
Streets	1,900	3,600	3,200	90	-11
Water, Sewer, & Sanitation	32,200	23,200	27,200	-28	17
Library	1,700	1,500	1,500	-12	
Highway	36,500	10,900	9,450	-70	-13
Miscellaneous	5,500	5,400	15,000	-13	295
TOTAL	\$ 94,700	\$ 66,900	\$ 83,850	-29	25
Total Assessed Valuation	\$317,042	\$351,281	\$373,897	10	06
<u>Revenues</u>					
Property Tax	15,900	14,900	21,400	-6	44
Cigarette Tax	4,100	4,200	4,350	2	4
Water, Sewer, Garbage	25,200	28,600	33,260	14	16
Beer & Liquor Licenses	2,600	3,200	2,600	23	-19
Highway Tax	35,100	14,300	16,150	-59	13
Real Estate Revenue	4,400	1,400	2,900	-68	107
Special Assessment	23,500	19,900	28,000	-15	41
Miscellaneous	5,600	4,200	20,945	-25	11
TOTAL	\$116,400	\$ 90,700	\$129,605	-22	43

TABLE 8-5. Budget summary for Washburn, ND, FY-74 to FY-76.

	FY-74	FY-75	FY-76	Percent Change	
				FY-74-75	FY-75-76
<u>Operating Expenditures</u>					
General Administration	\$ 9,900	\$ 18,400	\$ 25,300	86	38
Law Enforcement	10,200	10,800	16,000	6	48
Fire Protection	1,400	1,200	18,000	-14	1400
Streets	10,800	19,300	32,000	79	66
Water, Sewer, & Sanitation	39,400	35,100	38,000	-11	8
Miscellaneous	<u>6,600</u>	<u>0</u>	<u>0</u>	<u>-100</u>	<u>0</u>
TOTAL	\$ 78,300	\$ 84,800	\$129,300	8	53
<hr/>					
Total Assessed Valuation	\$399,211	\$435,233	\$526,864	09	21
<hr/>					
<u>Revenues</u>					
Property Tax	16,300	15,600	18,200	- 4	17
Cigarette Tax	4,200	4,300	4,500	2	5
Water, Sewer, Garbage	25,000	38,900	51,200	56	32
Beer & Liquor Licenses	3,200	3,200	4,000	0	25
Highway Tax	14,400	14,100	15,000	- 2	6
Sewer Lagoon	5,000	5,000	5,000	0	0
Paving Assessments	14,300	15,600	41,300	9	165
Improvement Bonds	14,200		17,000	-100	Und
Miscellaneous	<u>15,900</u>	<u>26,700</u>	<u>18,700</u>	<u>423</u>	<u>-78</u>
TOTAL	\$112,500	\$123,400	\$174,900	10	42

TABLE 8-6. Budget summary for Wheatland, WY for FY-74 to FY-77.

	Actual FY-74	Actual FY-75	Actual FY-76	(Expected) FY-77	Percent Change 1974 to 1975	Percent Change 1975 to 1976
<u>Operating Expenditures</u>						
General Administration	*	*	*	\$ 141,100	NA	NA
Law Enforcement	\$ 69,366	\$ 78,679	\$109,444	117,900	13	39
Fire Protection	8,240	7,889	9,665	10,600	- 4	23
Streets	55,314	103,712	60,050	147,200	87	-42
Electric	230,817	285,001	394,963	372,200	23	39
Water and Sewer	80,563	112,708	100,181	171,200	40	-11
Sanitation	43,057	46,530	61,000	59,000	8	31
Parks and Recreation	32,450	27,500	31,500	45,000	-23	19
Cemetery	22,905	17,901	19,170	22,000	-22	7
Airport	17,923	1,713	1,150	4,000	-90	-12
Capital Investment	22,500	58,746	67,021	49,400	161	14
Debt Service	---	---	---	208,800	NA	NA
Miscellaneous	24,700	53,500	81,400	45,500	---	---
TOTAL	\$607,696	\$793,971	\$935,943	\$1,393,860	31	18
Total Assessed Valuation		\$360,000	\$516,000			43
<u>Revenues</u>						
Electric	\$268,253	\$322,352	\$376,357	\$ 425,000	20	17
Sanitation	48,451	49,879	52,502	58,500	3	5
Water & Sewer	56,071	73,360	149,423	178,500	31	34
Licenses and Permits	14,776	37,989	31,657	97,000	264	-16
Improve Districts						
#7A and 8A	4,052	5,534	8,745	7,800	37	58
Cigarette Tax	28,137	32,035	33,567	37,000	14	5
County Tax	4,283	3,056	4,627	4,500	-29	51
Gasoline Tax	51,357	48,006	53,165	60,000	- 7	11
Sales Tax	44,071	59,906	114,143	118,500	36	91
Hook-up Charges	---	---	22,450	177,500	NA	NA
Revenue Sharing	9,489	9,802	10,450	7,800	3	7
Miscellaneous	78,711	89,406	108,819	72,000	8	24
TOTAL	\$607,651	\$731,325	\$965,905	\$1,244,100	20	32

\*For 1974 to 1976 General Administration is included in Miscellaneous.

NA = Not Applicable.

total cost of about \$160,000. Most of this expenditure would not have occurred without the Coal Creek Station.

In Wheatland, law enforcement expenditures rose by about 40 percent in FY-76. Most of the increase was in salaries and benefits for new employees. The department grew from five full-time officers in FY-75 to eight full-time officers and a part-time secretary in FY-76. In FY-77 two more full-time officers will probably be added and the secretary will become full-time. Thus, the department will have doubled in size during a two year period. Preliminary data on arrests for Wheatland (see Chapter 10) indicate the size of the expansion was probably necessary.

In the control cities, law enforcement expenditure increases have been more modest (Tables 8-7 and 8-8). Kimball had an increase of 14 percent in FY-75 and nine percent in FY-76; while Harlowton had a 67 percent increase in FY-76, but this was due to a one-time equipment expenditure. Neither Harlowton nor Kimball has expanded its department size in the past two years.

#### 8.5 Public Utilities

Expenditures for public utilities, i.e., water, sewer, sanitation and electricity, account for the largest increases in expenditures in impacted cities (Tables 8-4 to 8-6). Increases in operating expenditures were large only in Wheatland (approximately 40 percent in FY-76), but increases in capital expenditures to expand public utilities have presented major problems for the impacted towns (Table 8-2). The problem is that, historically, capital expenditures have usually been paid out of the normal tax base. Because many cities in the Old West Region are permitted by law to use only a small property tax rate and are limited to bonding for only a small percentage of their assessed property



TABLE 8-7. Budget summary for Kimball, NE, FY-74 to FY-76.

	FY-74	FY-75	FY-76	Percent Change	
				FY-74-75	FY-75-76
<u>Operating Expenditures</u>					
General Administration	\$ 37,700	\$ 40,500	\$ 53,200	08	32
Law Enforcement	80,700	91,210	99,300	14	09
Fire Protection	6,900	7,900	49,000	16	600
Streets	95,500	104,400	136,400	09	30
Electric	392,000	520,700	585,000	32	13
Water and Sewer	108,500	133,000	134,500	23	01
Sanitation	52,340	57,275	56,850	09	00
Parks and Recreation	74,350	75,600	90,000	02	20
Library	24,000	26,500	26,500	10	00
Cemetery	10,950	15,000	19,200	50	33
Airport	55,000	34,500	16,700	-38	-53
Miscellaneous	<u>7,700</u>	<u>22,000</u>	<u>40,300</u>	<u>200</u>	<u>91</u>
TOTALs	\$ 934,640	\$1,128,585	\$1,306,950	20	16
<hr/>					
Total Assessed Valuation	\$7,449,590	\$7,863,675	\$7,883,660	06	00.2
<hr/>					
<u>Revenues</u>					
Property	\$ 203,600	\$ 155,000	\$ 220,840	-24	42
Licenses, Fees, Permits	5,100	5,200	3,800	2	-27
Interest	21,600	25,600	12,400	19	-52
Other Taxes	5,900	8,900	9,000	51	1
Miscellaneous	94,130	134,000	137,000	42	2
Sales and Income Taxes	29,120	28,600	28,542	- 2	0
Highway Tax	97,600	98,400	101,000	1	3
U.S. Treasury Bonds	35,200	31,500	33,360	-11	6
Revenue Sharing	1,100	75,280	49,100	6,744	-35
Electric	392,000	520,700	585,000	33	12
Water and Sewer	108,500	133,000	134,500	23	1
Sanitation	<u>52,340</u>	<u>57,275</u>	<u>56,850</u>	<u>9</u>	<u>- 1</u>
TOTALS	\$1,046,190	\$1,273,455	\$1,371,392	22	08

TABLE 8-8. Budget summary for Harlowton, MT, FY-75 and FY-76.

	FY-75	FY-76*	Percent Change FY-75-76
<u>Operating Expenditures</u>			
General Administration	\$ 7,160	\$ 10,150	43
Law Enforcement	8,950	15,000	67
Fire Protection	4,290	7,250	43
Streets	14,640	14,200	-03
Water and Sewer	38,600	27,100	
Parks and Recreation	10,340	11,000	
Miscellaneous	<u>11,170</u>	<u>14,500</u>	<u>30</u>
TOTAL	\$95,150	\$99,200	29
Total Assessed Valuation	\$3,901,225	\$4,206,427	07
<u>Revenues</u>			
Property Tax	\$ 52,000	\$ 62,100	19
License, Fees, Fines	3,600	3,300	-10
Recreation	1,500	1,300	-13
County Contract	2,500	2,500	00
Water and Sewer	39,000	47,200	00
Miscellaneous	<u>2,800</u>	<u>4,300</u>	<u>53</u>
TOTAL	\$101,400	\$120,700	18

\*Budgeted not actual expenditures.

valuation, capital expenditures are usually carefully planned and spread over an extended time. Due to these revenue limitations, cities normally undertake no more than one capital improvement project at a time, i.e., waiting until one bond issue was retired before attempting another project. With the slow or declining growth of many towns in the Northern Great Plains during the past several decades this method of financing has been at least minimally adequate.

However, in the past two years, Underwood, N.D., has issued bonds in the amount of \$202,100, requiring approximately \$23,000 in annual payments. In addition, Underwood received an \$88,000 Coal Impact Grant. These expenditures were for water and sewer improvement only, but they have almost exhausted Underwood's financing capability. The figures for Washburn, N.D. and Wheatland, WY are more dramatic. Washburn issued \$625,000 in bonds and received \$585,000 in Coal Impact Grants. But these funds are only for a new water treatment system and now the city has exhausted its bonding capability.

Wheatland has issued bonds totaling \$2,856,000, requiring approximately a \$375,000 annual payment. Although these bonds have been guaranteed much of the revenue for the required annual debt retirement payment will have to come from fees and special taxes. Wheatland enacted a utility hook-up fee of \$750/house and \$500/mobile home in 1976 which will supply a majority of the revenue for repayment of the bonds.

#### 8.6 Fire Protection

Fire protection costs depend on whether a community has a volunteer department or a professional full-time department. Underwood's and Washburn's volunteer departments have had sufficient equipment to meet their needs to date. But Washburn recently had to hire one full-time professional. This increased its cost considerably. Because of the professional staff in Washburn, Underwood may not have to hire any full-time staff.

Wheatland, Wyoming experienced an increase in operating costs for fire protection from FY-75 to FY-76 of about 23 percent. If the debt for the new pumper (\$70,000 - Table 8-9) were included, the percentage increase would be over 125 percent. Kimball bought a new

pumper in FY-76 which increased its annual costs seven fold. Harlowton had a 43 percent increase in fire protection costs attributable mainly to inflation and increased salaries.

## CHAPTER 9

### SCHOOL ENROLLMENTS, REVENUES AND EXPENDITURES

#### 9.1 Introduction

Rapidly expanding energy development poses several important problems for school districts in impacted areas. These problems have been observed in the past in communities affected by energy developments, yet more study is needed before they can be anticipated well enough to minimize their impacts. Among the factors about which uncertainty remains are pupil-population ratios, the grade distribution of incoming students, and the magnitude and type of expenditure increases required to accommodate new student populations. During our studies in the Old West Region, we are attempting to increase the understanding of such factors in order to provide a basis for mitigating their impacts in the future.

In this chapter we compare projected with actual enrollment increases for fall 1976 in both impacted counties. Operating expenditures and capital facility expenditures are analyzed also to isolate increases directly attributable to recent growth. Finally, the financing mechanisms used for capital facilities expenditures in each of the test counties are explained. Comparisons among test and control counties are also included where appropriate.

#### 9.2 Summary of Findings

School enrollments in the impacted counties (McLean and Platte) increased between 10 percent and 27 percent during the two-year period

extending from fall 1974 to fall 1976. During the same period enrollments in the control counties (Kimball and Wheatland) declined 27 percent and four percent, respectively. The enrollment increases in the impacted counties were concentrated in grades kindergarten through eighth (K-8), with only small or nonexistent increases in high school enrollments.

In both impacted counties, actual enrollment levels for fall 1976 were below projected levels made prior to the start of construction of the power plants in each county. In both cases the discrepancy is partially due to assumptions concerning the timing of construction. However, both sets of projections appear to have over-projected high school enrollment increases relative to increases in elementary grades.

The costs of capital facility expansions exceeded the normal revenue-generating capacities in both test counties. Necessary additional revenues were obtained through different mechanisms in each county. In McLean County grants for facility expansion were received from the state coal impact fund. In Platte, additional revenues were obtained by forming a non-profit, tax-exempt school authority which issued revenue bonds guaranteed by the company building the power plant.

### 9.3 Enrollments

In this section we investigate school enrollment changes in five community areas containing a total of nine school districts. The five areas are: (1) Wheatland, Chugwater and Glendo, Wyoming; (2) Underwood, North Dakota; (3) Washburn, North Dakota; (4) Kimball, Nebraska; and (5) Harlowton, Shawmut and Two Dot, Montana. Each of the five areas encompasses a single school district with the exception of Kimball, Nebraska, which encompasses five separate districts. These districts

were combined for purposes of the following discussion. The facilities of the areas vary from a minimum of one elementary school and one high school to a maximum of three elementary schools, one junior high, and three high schools.

Elementary, high school, and total school enrollments for each area from fall 1974 to fall 1976 are given in Table 9-1, along with percentage changes in enrollments for that period. Total enrollments in the impacted areas (Platte and McLean counties) rose from 10 to 20 percent between fall 1974 and fall 1976, while enrollments in non-impact areas fell from four to 27 percent during the same period. The greatest increases in impacted areas are in the elementary school enrollments, but high schools in the impacted areas, except for the one in Underwood, North Dakota, also experienced enrollment increases.<sup>1</sup>

Given these enrollment figures, it is interesting to assess the accuracy of formulas used in project enrollments for the impacted counties. School enrollments in the Coal Creek impact study were projected only for the peak year of the construction period.<sup>2</sup> The assumptions made were:

- 1) Increased school enrollments would be equal to the sum of 0.22 times the migrating construction work force population and 0.32 times the migrating operational work force population.
- 2) Enrollment increases apportioned 0.75 to elementary and 0.25 to secondary grades for the population associated with the construction work force; and 0.67 to elementary and 0.33 to secondary grades for the operational work force.

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<sup>1</sup>Since many rural areas do not have separate junior high school facilities, grades K-8 have been combined into the "elementary" category for this comparison.

<sup>2</sup>Toman, N., et al. (1976).

TABLE 9-1. School enrollments of selected school districts in the four study counties, 1974, 1975, and 1976.

Item	Platte County, WY	McLean County, ND		Kimball County, NE	Wheatland County, MT
	Wheatland- Chugwater- Glendo	Underwood	Washburn	Kimball	Harlowton- Shawmut-Two Dot
Elementary Enrollments					
1974-75	853	171	221	913	297
1975-76	920	176	239	664	292
1976-77	1,050	199	269	603	294
% Change 1974-76	+23	+16	+22	-34	-1
High School Enrollments					
1974-75	420	99	107	407	169
1975-76	461	90	122	347	159
1976-77	476	97	114	365	152
% Change 1974-76	+13	-2	+7	-10	-10
All Grades (K-12)					
1974-75	1,273	270	328	1,320	466
1975-76	1,381	266	361	1,011	451
1976-77	1,526	296	383	968	446
% Change 1974-76	+20	+10	+17	-27	-4



No mention is made of school children associated with increases in induced employment, but we assume that such increases are accounted for in the above factors.

Comparisons of projected enrollment increases for the peak construction period with actual enrollment increases through the fall of 1976 are given in Tables 9-2 and 9-3. Table 9-2 presents data for Washburn and Table 9-3 presents data for Underwood. Since employment at the Coal Creek plant site is not expected to peak until 1978, it is not surprising that actual school enrollment increases have not reached their projected levels. However, it is interesting to note that elementary school enrollments appear to be increasing much faster relative to high school enrollments than was projected. For example, the Coal Creek study projects a total increase of 158 students in Washburn schools by 1978, of which 70 percent would be elementary students. However, by fall 1976, 87 percent of the enrollment increase was in the elementary grades. In Underwood the situation is even more pronounced; while elementary enrollments have increased since construction of the plant began, high school enrollments have actually decreased.

The method used to project enrollments in the Laramie River Station study was based on the following assumptions:<sup>3</sup>

- 1) Approximately 40 percent of the construction labor force and all of the induced labor force would establish households in the area during the construction period.
- 2) The number of school age children per new household would be:

<u>Grade Level</u>	<u>Children Per Household</u>
K - 6	.50
7 - 9	.30
9 - 12	.20

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<sup>3</sup>Thompson, J. et al. (1975).

TABLE 9-2. Actual and projected increases in school enrollments for Washburn, ND.

Description	Projected Increase 1974-1976	Actual Increase 1974-1976	Ratio of Actual to Projected
In-migrating Population	572	119	.21
Enrollment Increase Grades K-8	110	48	.44
Enrollment Increase Grades 9-12	48	7	.15

TABLE 9-3. Actual and projected increases in school enrollments for Underwood, ND.

Description	Projected Increase 1974-1976	Actual Increase 1974-1976	Ratio of Actual to Projected
In-migrating Population	556	247	.44
Enrollment Increase Grades K-8	108	28	.26
Enrollment Increase Grades 9-12	46	-2	-.04

- 3) School enrollments would have increased by about two percent per year if the plant had not been built.

Table 9-4 presents enrollments calculated for Platte County District 1 (Wheatland, Glendo, Chugwater) using the above method and actual enrollments for fall 1976. However, this finding is consistent with the fact that construction of the plant did not begin until July 1976, and thus employment at the plant site had not reached the levels projected based upon an April 1976 start date, the assumption used in making the projections. As in McLean County, however, it appears that elementary enrollments are increasing slightly faster than projected relative to high school enrollments.

#### 9.4 School Expenditures and Revenues

Operating expenditures have been increasing for most of the schools in the four counties (Table 9-5). Capital expenditures, however, have undergone large increases only in the impact areas. With decreasing enrollments, schools in the control counties have not had to expand facilities. The increases in operating costs shown in Table 9-5 are due mainly to the effect of inflation on salaries, transportation, operation and maintenance costs.

Detailed budgets for the Underwood schools are given in Tables 9-6 through 9-8. In fiscal year 1976, Underwood schools experienced a slight decrease in operating expenditures. However, in FY-77, expenditures responded to increased enrollments from construction impact and the operating budget increased by 33 percent. Categories where major expenditures increases occurred were instruction (includes salaries), transportation, operation of plant and equipment and maintenance (Table 9-6). Increases in these categories were due primarily to the addition

TABLE 9-4. Projected and actual school enrollments by grade level for Platte County School District #1, fall 1976.

Grade Level	Projected Enrollment	Actual Enrollment	Ratio of Actual/Projected
K-8	1,113	1,050	.94
9-12	554	476	.86

of seven new classrooms, a library and a new administrative office to the school's physical plant (Table 9-8). This, in turn, increased the costs for new teachers and additional maintenance and operation. Revenues are projected to exceed expenditures in the district in FY-77 because the district has been carrying a large (\$80,000+) cash balance (Table 9-7). That balance will be exhausted by FY-78. Sources of increased revenue were the school foundation fund and the general tax levy.

School districts in North Dakota are allowed to assess a 20 mill building fund levy and a 14 mill construction levy, the proceeds of the latter going to repay the State School Construction Fund. Both of these revenue sources plus a \$170,000 Coal Impact Grant were exhausted to pay for facility expansion listed in Table 9-8. A 34 mill tax increase for property owners in the district raised the mill levy for schools to approximately 100 mills.

The financial situation in the Washburn school districts is given in Tables 9-9 through 9-11. Operating expenditures (Table 9-9) have not risen as much as in Underwood, although we expect the Washburn operating budget may rise substantially in FY-78. To date, however, operating expenses for salaries, transportation costs, and plant operation and maintenance cost have not risen in proportion to the physical plant expansion which occurred in FY-76.

TABLE 9-5. Summary of school operating expenditures, FY-75 to FY-77.

Area	Total Expenditures			Percent Change	
	FY-75 <sup>1</sup>	FY-76	FY-77 <sup>2</sup>	FY-75-76	FY-76-77
McLean County:					
Underwood, N.D. #8	\$ 319,500	\$ 297,200	\$ 395,300	-7	33
1 Elementary					
1 High School					
Washburn, N.D. #4	335,500	366,600	373,400	9	02
1 Elementary					
1 High School					
Platte County:					
Wheatland- Chugwater- Glendo, WY #1	1,950,000	2,350,000	2,811,660	21	20
3 Elementary					
1 Jr. High					
3 High School					
Guernsey- Sunrise #2	540,000	660,000	708,460	22	07
2 Elementary					
1 Jr. High					
1 High School					
Kimball County:					
Kimball, NE #005	1,682,300	1,787,600	NA	6	NA
#4, #3, #24, #1					
4 Elementary					
Wheatland County:					
Harlowton-Shawmut-Two Dot	609,600	673,900	NA	11	NA
3 Elementary					
1 High School					

<sup>1</sup>FY-75 corresponds to the 1974-75 school year.<sup>2</sup>=Appropriations, not expenditures.

TABLE 9-6. School operating expenditures for Underwood, N.D., FY-75 through FY-77.

Operating Expenditures	FY-75 <sup>1</sup>	FY-76	FY-77 <sup>2</sup>	Percent Change FY-75-76	Percent Change FY-76-77
Administration	\$ 19,690	\$ 24,130	\$ 28,500	22	18
Instruction (Includes salaries, textbooks, supplies, etc.)	166,160	182,760	213,200	10	17
Public Transportation Service	30,110	33,850	47,900	12	41
Operation of Plant and Equipment	29,270	31,830	47,900	9	50
Maintenance of Plant and Equipment	4,870	4,230	10,000	-13	136
Fixed Charges	5,000	4,250	10,200	-15	140
Food Services	7,050	6,920	8,700	- 2	25
Student Body Activities	17,800	4,560	5,500	-74	20
Capital Outlay	9,510	3,020	21,000	-68	595
Miscellaneous	<u>30,000</u>	<u>1,600</u>	<u>2,500</u>	<u>-95</u>	<u>56</u>
TOTAL	\$319,460	\$297,150	\$395,300	- 7	33

<sup>1</sup>FY-75 corresponds to the 1974-1975 school year.

<sup>2</sup>Appropriations, not expenditures.

TABLE 9-7. School revenues for Underwood, N.D., FY-75 through FY-77.

Revenues	FY-75 <sup>1</sup>	FY-76	FY-77 <sup>3</sup>	Percent Change FY-75-FY-76	Percent Change FY-76-FY-77
Cash Balance	NA <sup>2</sup>	\$ 89,100	\$ 88,340	NA	- 1
Income from Back Taxes		8,560	4,800		-44
State Tuition		10,000	12,000		20
Foundation Program		164,300	180,200		10
Foundation Program - Transportation Payment		15,300	15,270		0
Other Services		15,000	12,000		- 20
General Tax Levy		91,160	87,030		- 5

<sup>1</sup>FY-75 corresponds to the 1974-75 school year.

<sup>2</sup>NA = not available for this draft.

<sup>3</sup>Estimates, not actual revenues.

TABLE 9-8. Summary of capital expenditures for schools in Underwood, N.D.

Facility	Total Amount	Bond Rates		Annual Amount For Debt Retirement*
		Interest	Years	
Seven new elementary classrooms, library and Administrative Offices	\$650,000			
<u>Funding Sources</u>				
Coal Impact Funds	170,000	---	--	-----
State School Construction Fund	273,000	2%	14	\$22,000
Bond Issue, passed 7/75	<u>207,000</u>	6.33%	20	<u>16,000</u>
TOTAL	\$650,000			

\*Debt retirement amounts are approximations.



TABLE 9-9. School operating expenditures for Washburn, N.D., FY-75 through FY-77.

Operating Expenditures	FY-75 <sup>1</sup>	FY-76	FY-77 <sup>2</sup>	Percent Change FY-75-76	Percent Change FY-76-77
Administration	\$ 22,870	\$ 24,620	\$ 29,000	8	18
Instruction (Includes salaries, textbooks, supplies, etc.)	198,720	209,440	226,500	5	8
Public Transportation Service	29,000	41,410	38,800	43	- 6
Operation of Plant and Equipment	27,380	33,750	34,200	23	13
Maintenance of Plant and Equipment	3,150	17,500	15,000	455	-14
Fixed Charges	16,210	19,230	13,000	19	-32
Food Services	1,350	810	1,400	-40	73
Student Body Activities	20,210	5,800	3,500	-71	-40
Capital Outlay	18,660	11,020	9,000	-41	-18
Miscellaneous	<u>100</u>	<u>3,000</u>	<u>3,000</u>	<u>2,900</u>	<u>0</u>
TOTAL	\$335,500	\$366,600	\$373,400	9	2

<sup>1</sup>FY-75 corresponds to the 1974-1975 school year.

<sup>2</sup>Appropriations, not expenditures.

TABLE 9-10. School revenues for Washburn, N.D., FY-75 through FY-77.

Revenues	FY-75 <sup>1</sup>	FY-76	FY-77 <sup>3</sup>	Percent Change FY-75-FY-76	Percent Change FY-76-FY-77
Cash Balance	NA <sup>2</sup>	\$ 79,560	\$ 57,900	NA	-27
Income from Back Taxes		6,700	5,250		-21
State Tuition		8,000	8,000		0
Foundation Program		194,220	238,190		22
Foundation Program - Transportation Payment		22,800	23,550		3
Other Services		23,000	17,000		-26
General Tax Levy		<u>68,000</u>	<u>98,513</u>		44
Estimated Total Revenues		\$402,500	\$448,400		11

<sup>1</sup> FY-75 corresponds to the 1974-75 school year.

<sup>2</sup> NA = not available for this draft.

<sup>3</sup> Estimates, not actual revenues.

TABLE 9-11. Summary of capital expenditures for schools in Washburn, N.D.

Facility	Total Amount	Bond Rates		Annual Amount For Debt Retirement
		Interest	Years	
Seven new elementary classrooms and a gym, equaling 21,000 sq. ft. @ \$30 per sq. ft.	\$630,000			
Architects' Fees	38,900			
Contingencies	<u>45,000</u>			
Total Funds Needed	\$713,900			
<u>Proposed Funding Sources</u>				
Coal Impact Funds	\$328,000	---	--	-----
State School Construction Fund	<u>163,000</u>	2%	15	\$12,000
Subtotal	490,000			
Bond Issue, passed 6/29/76	<u>109,000</u>	6%	20	8,500
Subtotal	599,000			
Proposed Bond Issue	<u>162,000</u>	6%	20	13,000
Total	\$761,000			

In 1976 the Washburn school district built seven new classrooms and a gym at a cost of \$713,900 (Table 9-11). As in Underwood, the cost was paid with funds from the coal impact fund, the school construction fund and two bond issues totaling \$271,000. The mill levies passed to repay the bond issues and the school construction fund have almost exhausted the district's revenue generating ability.

Total operating expenditure increases in Platte County are similar to the increases in North Dakota (Table 9-12). Expansion of classrooms has resulted in increases in costs for instruction, transportation, and general maintenance and operation. But capital facility expansion costs in Platte have been considerably larger than in McLean. The difference is partially due to the fact that counties in Wyoming are more sparsely settled and have few school facilities close enough to share the population impact.

Table 9-14 summarizes the capital expenditures which have been necessary in Platte to absorb the impact. Due to the funds required to replace the high school which burned down in the early 1970's, the school district had already exhausted its bonding capacity with a \$1,520,000 bond issue in 1974. That bond issue requires over \$130,000 in annual debt service payment.

The cost for facilities to handle impact in School District #1 in Platte County is nearly four times the expenditure needed in any single school district in McLean County. Even without the 1974 high school bond issue, Platte would have been capable of financing only about half of the needed new facilities to prevent crowding problems. To solve this financing problem the Missouri Basin Power Project (MBPP) and the local school board formed the Platte County School District No. 1 School

Facilities Authority. This corporation received tax exempt status from the Internal Revenue Service to issue seven million dollars worth of tax exempt bonds, guaranteed by the MBPP. As the assessed property valuation of the school district increases because of the power plant, the district should have sufficient revenue to repay the bonds. If the district does not have the funds, however, the power company will be liable for any deficit.

The figures for the impact counties presented above indicate that school districts in different states in the Old West Region may have different experiences with the impact created by energy developments. The sparsely settled counties of Wyoming with few and large school districts may not be able to accommodate large enrollment increases with their normal sources of revenue. Special funding arrangements such as the Platte County Authority or coal impact funds described above may be necessary to accommodate mineral developments in these states.

TABLE 9-12. Operating expenditures for School District No. 1, Platte County, WY.

Operating Expenditures	FY-76 <sup>1</sup>	FY-77 <sup>2</sup>	Percent Change FY-76-FY-77
Instructional	\$1,438,684	\$1,971,784	37
General Support	603,295	722,872	20
Administration	292,033	262,105	-10
General Maintenance & Operation	171,978	218,105	27
Transportation	139,284	242,662	74
Food Services	---	---	--
Community Support	0	0	0
Non Program Charges	25,052	32,000	28
Sub-Total	2,067,032	2,726,656	32
Cash Reserves	<u>283,050</u>	<u>85,000</u>	-70
TOTAL	\$2,350,081	\$2,811,656	20

<sup>1</sup>FY-76 corresponds to the 1975-76 school year.

<sup>2</sup>Appropriations, not expenditures.

TABLE 9-13. Revenues for School District No. 1, Platte County, WY.

Revenues	FY-76 <sup>1</sup>	FY-77 <sup>2</sup>	Percent Change FY-76-FY-77
Cash Balance	\$ 271,618	\$ 283,050	4
Local District Revenue			
Property Taxes	612,992	677,201	10
Other Local	61,980	82,175	33
County Revenue			
County Taxes	349,332	389,738	12
Other County	---	---	--
State Revenue			
School Foundation	982,566	1,227,492	38
Land Income	148,711	140,000	- 6
Other State	5,634	5,500	- 2
Federal Revenue	<u>7,248</u>	<u>6,500</u>	<u>-10</u>
TOTAL	\$2,350,081	\$2,811,656	20

<sup>1</sup> FY-76 corresponds to the 1975-76 school year.

<sup>2</sup> Estimates, not actual revenues.

TABLE 9-14. Summary of capital expenditures for School District No. 1 in Platte County.

Facility	Total Amount	Bond Rates		Annual Amount For Debt Retirement
		Interest	Years	
New High School, 1974	\$1,520,000	.06	20	\$131,400
Elementary School	2,481,000			
Addition to Old Elementary School	272,000			
Addition to Junior High	401,000			
Addition to High School	271,000			
Addition to Glendo School	<u>821,000</u>			
Subtotal	\$4,246,000	NA	NA	NA

NA = These bonds have not been issued yet so this information is not yet available.



## CHAPTER 10

### ASPECTS OF COMMUNITY CHANGE

#### 10.1 Introduction

Previous sections of this report have examined population and employment changes in the four counties, as well as changes in whole-sale, retail and service trades. Changing housing patterns and preferences were reviewed, and financial flows for the major political subdivisions in each county were compared.

Changes occurring with resource development, however, encompass more than physical and economic changes. The basic social organization of communities in developing areas may be changing as a result of the rapid population influx. Changes in social organization are often referred to as changes in the "quality of life." Sometimes grandiose efforts are made to measure and predict changes in "quality of life." Usually such efforts consist of analyzing people's statements about their attitudes and beliefs in relation to the physical changes we have described above. We maintain that such efforts measure only part of the change taking place in people's lives. Measuring belief and attitude statements is a limited approach because actual behavior is often different than people's statements about their behavior. Thus, as this study proceeds we will try to examine community change by describing not only people's statements of beliefs and attitudes, but also changes in behavior patterns.

In this chapter we focus on important activities which help determine each person's satisfaction with community life which have not been

covered previously. We begin by analyzing recreational opportunities in each county. We then review responses from the household questionnaire on satisfaction with community services. Next we present arrest records for each of the counties and compare actual arrests with perception of crime as measured by responses to attitude/belief questions from the household survey. Finally we discuss attitudes toward energy development and economic growth.

## 10.2 Summary of Findings

Both outdoor and indoor recreation facilities were assessed in the impacted counties to estimate the overall adequacy of recreational facilities to meet the demands of rapid growth. Outdoor recreation opportunities are plentiful in both counties. Indoor recreation facilities are in short supply in both counties. Data are not yet available to indicate whether this shortage may contribute to worker turnover or other problems, and, hence, constitute a negative social change. Efforts are being made to monitor usage rates and consumer satisfaction to help assess the role recreation plays in situations of community change.

Responses to questions on satisfaction with public services indicate people in all four counties are generally quite pleased with most public services including schools. There was some dissatisfaction expressed with shopping facilities and household services, particularly in the non-impact counties. On the subject of health services, the impact counties expressed greater dissatisfaction. In all four counties the object of greatest dissatisfaction was county government.

Reports of arrests in the four counties were analyzed for calendar years 1975 and 1976 on the assumption that arrest records are a reasonable indicator of the rate at which crimes are being committed. Although the

changes are not large in absolute terms, the impacted counties have experienced large percentage increases in arrests for burglary, theft, vandalism, and drug and alcohol related offenses. The available data suggest at least a doubling of total arrests since the beginning of construction activities. Should arrests continue to increase at this rate, the communities involved will be facing serious law enforcement problems.

Generally, people's perceptions of crime correspond to the pattern revealed by arrest records. When people were asked to list what they thought were "crime problems," their problem list corresponded reasonably well to problem areas reflected by arrest records.

People's attitudes toward energy development and economic growth are generally similar in all four counties. This finding is consistent with the economic and demographic similarity of the counties prior to development. Whether attitudes in the impacted counties will change over time is a subject for further study.

### 10.3 Recreation

Recreation or leisure time behavior is an important facet of a community's social organization. Recreational activities can serve both as a means to meet and interact with people and as a means to relieve the tension resulting from work and problems of everyday living. Previous studies have indicated the importance of adequate recreation or leisure time facilities and activities in stabilizing communities with large numbers of construction workers.<sup>1</sup> If recreation facilities and activities are grossly inadequate, it can be a major factor inducing construction workers to "move on" to another construction site. If such unnecessary

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<sup>1</sup>See especially, "The Process for Policy and Objectives for Growth Management in Sweetwater County, Wyoming," University of Denver Research Institute, 1975.

migration occurs a process of deterioration in the "quality of life" of a community can occur. A high rate of employee turnover can cause a decline in employee morale, leading to even more turnover. High population turnover can lead to increased workload and costs for public services causing a further decline in the quality of life.

The remainder of this section is devoted to a review of the indoor and outdoor recreation facilities currently available in Platte and McLean counties. Data relevant to changes in recreational patterns will be analyzed as the study proceeds.

#### 10.3.1 Outdoor Recreation

Both Platte and McLean Counties have extensive areas available for outdoor recreation. In McLean County the open space areas can be categorized into four types: (1) state game management areas, (2) national wildlife refuges, (3) national water fowl production areas, and (4) state university lands. Together these public access areas account for approximately 60,000 acres or four and one-half percent of the land in the county.

There are nine state game management areas which are open to the public for hunting and fishing. The national waterfowl production areas are also usually open for hunting and fishing. While the six national wildlife refuges are not available for hunting and fishing, they provide suitable areas for hiking, backpacking, photography, and related activities. These outdoor areas include approximately 76 lakes and reservoirs.

Platte County is also well endowed with outdoor recreation areas. Glendo and Guernsey State Parks which total 28,900 acres are located within the county and provide substantial space for fishing, swimming, boating, picnicking, and other outdoor activities. The Laramie Peak

District of Medicine Bow National Forest lies adjacent to Platte County and provides recreational possibilities throughout the year. Furthermore, portions of the county's 84,000 acres administered by the Bureau of Land Management and Bureau of Reclamation are designated as recreation areas.

In summary, Platte County and McLean County appear to have sufficient open space areas to meet their short term needs even with the population growth they are experiencing.

#### 10.3.2 Indoor Recreation

The indoor recreation facilities in the two impacted counties are limited. In McLean County the three principal impacted communities, Washburn, Wilton, and Underwood, have a total of three movie theaters, three bowling alleys, and two libraries. There are no indoor swimming pools, and no indoor facilities such as squash courts, handball courts, or other similar areas for indoor sports.

The indoor recreational facilities in Platte County include two theaters, two bowling alleys and one main library with two branches. These facilities are distributed in the towns of Wheatland, Guernsey, and Glendo. There are two outdoor swimming pools in the county. An indoor recreation complex is being built in conjunction with a large housing project in Wheatland. This complex includes an indoor swimming pool, squash courts and a day care center. The facility is being built, however, to serve the needs of the construction work force and the extent to which local residents will be allowed to use the facility has not been determined.

The problem of indoor recreational areas in the two impact counties is further complicated by the fact that many such facilities lie largely in the domain of private enterprise. However, many recreational facilities

that could be provided with public funds, e.g., indoor swimming pools and recreation complexes, are not available, and facilities that currently exist may be insufficient to meet future needs.

#### 10.4 Satisfaction With Public Services

In the household survey, respondents from each county were asked to evaluate public services. The evaluations were aggregated into five groups: (1) schools; (2) sheriff and fire protection; (3) community services e.g., postal service, shopping facilities, telephone and electrical services; (4) health services and welfare; and (5) government.

The response choices for each area of service were: Extremely Satisfied (ES); Satisfied (S); Neutral (N); Dissatisfied (D); and Extremely Dissatisfied (ED). The figures in the tables which follow refer to the percentage of responses in each of these categories. The mean, calculated by assigning values of one for the extremely satisfied category to five for the extremely dissatisfied choice, is also included in the tables.

The evaluation of schools was both relatively favorable and consistent throughout all four counties. With the exception of Platte County, over 75 percent of the respondents expressed either satisfaction or extreme satisfaction with all levels of the school system. In Platte County approximately two-thirds of the residents chose these categories. This difference is slight and there appears to be general satisfaction with the school systems in both impact and non-impact counties.

Satisfaction with fire protection is also high in all of the counties. Over 80 percent of those surveyed in each area reported satisfaction or extreme satisfaction with their current fire protection.

TABLE 10-1. "How satisfied are you with sheriff protection?"

County	Mean	ES	S	N	D	ED
Platte	2.56	8%	54%	19%	12%	7%
McLean	2.41	9	61	13	13	3
Kimball	2.81	6	45	20	21	8
Wheatland	3.06	3	42	17	26	13

The evaluation of sheriff protection varied. Table 10-1 illustrates the responses to that question. The residents of the impact areas expressed a higher level of satisfaction with sheriff protection than did the respondents in the control counties.

Tables 10-2 and 10-3, respectively, indicate the evaluation of shopping facilities and household services (such as plumber, electrician, etc.) in each county. It is apparent that satisfaction with shopping facilities and household services is relatively low when compared to the other items in the community service group. The figures also suggest that shopping facilities in the non-impact areas were rated as slightly less satisfactory than those in the counties experiencing impact.

TABLE 10-2. "How satisfied are you with shopping facilities?"

County	Mean	ES	S	N	D	ED
Platte	2.86	5%	46%	12%	30%	7%
McLean	2.78	3	52	15	23	7
Kimball	2.94	6	38	18	31	6
Wheatland	3.00	2	42	18	31	7

TABLE 10-3. "How satisfied are you with household services?"

County	Mean	ES	S	N	D	ED
Platte	2.79	5%	47%	18%	23%	7%
McLean	2.88	4	47	14	27	8
Kimball	2.57	7	58	13	17	6
Wheatland	3.03	2	42	15	35	6

The questions concerning services in the health and welfare group include evaluations of hospital services and local physicians and dentists. The responses to these three items are shown in Tables 10-4 to 10-6. The pattern throughout the three tables is constant. Residents of the non-impact counties consistently express a higher degree of satisfaction with health services. This pattern is continued in the evaluation of ambulance service. Although all four counties report high ratings for their ambulance service, the figures for the impacted areas are somewhat lower than those for the control counties.

TABLE 10-4. "How satisfied are you with hospital services?"

County	Mean	ES	S	N	D	ED
Platte	2.76	6%	49%	17%	21%	8%
McLean	2.73	6	50	15	21	8
Kimball	1.93	25	62	7	5	--
Wheatland	2.22	14	63	11	10	2



TABLE 10-5. "How satisfied are you with local physicians?"

County	Mean	ES	S	N	D	ED
Platte	3.07	5%	39%	14%	31%	12%
McLean	2.75	10	46	12	26	7
Kimball	1.85	32	57	6	4	1
Wheatland	2.25	17	56	12	11	3

TABLE 10-6. "How satisfied are you with local dentists?"

County	Mean	ES	S	N	D	ED
Platte	2.87	3%	46%	21%	21%	9%
McLean	3.02	6	38	15	31	10
Kimball	2.76	14	38	14	26	8
Wheatland	2.27	18	55	13	12	3

TABLE 10-7. "How satisfied are you with mental health services?"

County	Mean	ES	S	N	D	ED
Platte	2.51	9%	39%	43%	7%	1%
McLean	2.79	2	35	48	11	4
Kimball	2.75	4	37	43	13	4
Wheatland	2.69	2	46	35	16	2

Table 10-7 reports the figures regarding satisfaction with mental health services. A large number of the respondents from each county chose the "neutral" response. A similar distribution of responses occurs in relation to a question concerning social service and welfare

programs. The similarity of these patterns is probably due to the fact that residents of the counties have not experienced personal contact with mental health or social service programs.

The evaluation of county government is shown in Table 10-8. These figures indicate that satisfaction with county government is slightly greater in Wheatland County than in the other areas. Table 10-8 also suggests that while over half of the residents were satisfied with their county's government, almost a fifth of the residents in each county are dissatisfied.

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TABLE 10-8. "How satisfied are you with county government?"

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County	Mean	ES	S	N	D	ED
Platte	2.64	4%	52%	25%	13%	5%
McLean	2.69	3	50	27	15	5
Kimball	2.67	5	49	24	19	4
Wheatland	2.56	3	61	17	16	4

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#### 10.5 Attitudes Towards Crime and Arrests Rates

The household survey administered in McLean, Wheatland, and Kimball Counties contained a section dealing with attitudes towards crime and satisfaction with law enforcement services. A slightly different questionnaire was administered in Platte County during 1975 and did not include identical questions concerning law enforcement. Although certain items from the earlier Platte County survey are similar to items from the three other counties, they are not strictly comparable and are not included in this report.

TABLE 10-9. "Would you say that the crime rate in (name) County is high, average or low?"

Response	Percent Respondents		
	Kimball County	Wheatland County	McLean County
High	3	6	5
Average	53	50	61
Low	41	42	28
Undecided	<u>3</u>	<u>3</u>	<u>6</u>
TOTAL	100	100	100

Table 10-9 shows that the majority of respondents in all three counties felt the crime rate in their county was average or low. Fewer respondents in McLean, however, felt the crime rate was low and more felt it was average.

When respondents were then asked if they thought a crime problem existed in their county, they responded as shown in Table 10-10. The responses are remarkably similar across counties. Approximately 60 percent thought there was no crime problem and 40 percent thought crime was a problem.

TABLE 10-10. "Do you think there is a crime problem in (name) County today?"

	Kimball		Wheatland		McLean	
	Number	Percent	Number	Percent	Number	Percent
Yes	105	40	81	42	99	38
No	<u>159</u>	<u>60</u>	<u>114</u>	<u>58</u>	<u>163</u>	<u>62</u>
TOTAL	264	100	195	100	262	100

If the respondent answered "yes" to the existence of a crime problem, he was asked to indicate what he felt to be the most serious crime problem in his county. Not all respondents answering "yes" to the previous question listed a problem; some of those listing problems listed more than one. The responses are presented in Table 10-11.

TABLE 10-11. Total mentioned crime problems.

	Percent Respondents		
	Kimball County	Wheatland County	McLean County
Robbery/Burglary	12%	2%	7%
Larceny/Theft	16	8	24
Vandalism	19	19	10
Narcotics/Drugs	33	50	32
Alcohol-related Offenses	10	12	12
Assaults--simple	--	1	--
Aggravated Assault	1	--	--
Forcible Rape	1	--	--
Breakdown in Justice System	6	2	3
Other	<u>3</u>	<u>6</u>	<u>12</u>
TOTAL	101	100	100

Narcotic or drug problems ranked as the most serious problem occurring in all counties. Vandalism, theft, burglary, and alcohol related offenses also ranked high in all counties. It is interesting to note that in the impact county, McLean, no one reported crimes against persons (i.e., assault or rape) as a problem of concern. In fact, none of the counties showed major concern with crimes against persons.

The perception of crime is often a more important determinant of people's satisfaction with the community they live in than is the actual crime rate. Nevertheless, it is instructive to compare perceptions of crime with arrest records. Care should be taken, however, not to conclude that a concern with a crime problem has no justification if the number of arrests for that crime is low. In fact, often people decide there is a crime problem precisely because there is a discrepancy between crimes and arrests, or crimes and convictions. Also, our analysis is tentative as the data includes only a limited time period.

Table 10-12 presents combined city and county arrest records in each county during 1974, 1975 and parts of 1976. In the impact counties, a pattern of increase is apparent. On the basis of nine months of data during 1976, arrests in Platte County have almost doubled over the level recorded for all of 1975. The major absolute increases were in crimes against property (robbery, burglary, and theft), in drug and alcohol related crimes, and in nuisance crimes (vandalism and disorderly conduct). While absolute increases in violent crimes against persons and rape were small, they nevertheless tripled and doubled, respectively.

A detailed comparison is difficult in McLean County between 1975 and 1976 because 1976 data is incomplete. Nevertheless, arrests for alcohol related crimes through two quarters of 1976 already matched the total for 1975. Construction on the power plant in McLean began in early 1975 and a comparison of 1974 and 1975 arrests shows total arrests rose 204 percent during that period. Major increases in arrests by category were concentrated in crimes against property (robbery, burglary and theft) as well as drug and alcohol related crimes. Again, as in Platte, rape and other sex crimes increased also.

TABLE 10-12. Combined city/county arrests for McLean and Platte Counties for 1974, 1975, and 1976.

	Platte			McLean			Kimball			Wheatland		
	1974	1975	1976 <sup>1</sup>	1974	1975	1976 <sup>2</sup>	1974 <sup>3</sup>	1975 <sup>3</sup>	1976 <sup>4</sup>	1974	1975	1976
Violent Crimes Against Persons	NA	1	3	0	0	0	2	3	5	1	0	NA
Forcible Rape and Other Sex Offenses	NA	1	2	0	2	0	3	3	0	0	0	NA
Robbery and Burglary	NA	8	21	3	11	0	17	16	2	6	0	NA
Larceny/Theft	NA	11	27	0	5	3	18	11	15	6	0	NA
Simple Assault	NA	11	9	1	1	0	2	5	0	1	0	NA
Fraud and Embezzlement	NA	12	10	0	0	0	0	7	0	0	0	NA
Vandalism and Disorderly Conduct	NA	8	41	0	1	0	21	19	7	2	2	NA
Prostitution and Commercial Vice	NA	0	0	0	0	0	0	0	0	0	0	NA
Drug Offenses	NA	3	14	0	4	1	13	13	12	3	1	NA
Gambling	NA	0	0	0	0	1	0	0	0	0	0	NA
Child Abuse	NA	3	0	0	0	0	0	0	0	0	0	NA
Alcohol Related Crimes	NA	17	23	13	27	27	100	94	46	8	5	NA
All Other Offenses	NA	25	42	9	28	9	39	64	123	19	21	NA
TOTAL	NA	100	192	26	79	41	215	235	210	46	29	NA

<sup>1</sup> Data for county available through September, 1976.<sup>2</sup> Data available through June, 1976.<sup>3</sup> Source: Nebraska Uniform Crime Report.<sup>4</sup> Data available only for city and only through August 1976; based on Kimball Police Reports.

While the data for Kimball is limited, increases in the numbers of crimes by category are slight. In many categories there are no clear increasing trends over the three years, and in others there are decreases. The major increase between 1975 and 1976 occurs in "All Other Offenses," a category arising from different classification schemes used by city and county data sources. No 1976 data is available for Wheatland County, but total arrests did decrease 25 percent between 1974 and 1975.

While there are obvious cautions to be observed in coming to conclusions on the basis of this early data, it is clear that should crime continue to increase in the impact counties at the rates observed between 1974 and 1976, both counties could soon have major crime problems.

A caution to be observed in reaching conclusions is the possibility that the rate of increase in some arrests may overstate the rate of increase of some crimes, particularly those dealing with drugs and alcohol and vandalism and disorderly conduct. In a small, stable population, where people know each other, such offenses are not necessarily nonexistent but are less likely to lead to arrests even when law enforcement officers must intervene. However, when there is an influx of new population, newcomers to the community are more likely to be arrested for the same offenses. As newcomers are arrested, pressures for equal treatment tend to develop and lead to the arrests of permanent residents for the same offenses. These mechanisms are reinforced by the increase of law enforcement personnel and facilities. Increased arrests, therefore, may tend to overstate increases in some offenses.

Table 10-13 presents a comparison of crimes reported as problems and frequency of arrests. Relatively few people cited crimes against persons as crime problems and relatively few arrests were made for

such crimes. Crimes against property were cited fairly frequently as crime problems and do account for a significant portion of arrests. An interesting discrepancy, occurs with drugs and alcohol; while drugs are perceived as a major crime problem and alcohol is not, alcohol related crimes account for more arrests than do drug related arrests in all counties.

TABLE 10-13. Comparison of "crime problems" and arrests by county.

Crime Type	Percentage Distribution of Perceptions of Crime Problems		
	Kimball County	Wheatland County	McLean County
Crimes Against Persons	2%	0%	0%
Crimes Against Property	47	30	41
Narcotics/Drugs	33	50	32
Alcohol-Related	10	12	12
Other	<u>9</u>	<u>7</u>	<u>15</u>
TOTAL	100	100	100
Percentage Distribution of Arrests (1976)			
Crimes Against Persons	4	3	4
Crimes Against Property	24	16	19
Narcotics/Drugs	6	6	4
Alcohol-Related	43	19	38
Other	<u>23</u>	<u>57</u>	<u>35</u>
TOTAL	100	100	100



## 10.6 Attitudes Toward Energy Development and Economic Growth

### 10.6.1 Background

A number of questions designed to measure the attitudes of residents toward development related issues were included in household questionnaires to the four counties. Areas of concern were separated into four categories: (1) the desirability of economic development, (2) the effect on the community of such development, (3) the effect on the physical environment, and (4) the change in community interaction due to development. The importance of these areas was determined from previous studies of impacted areas in Wyoming. In these earlier studies, considerable time was spent interviewing in the Old West region to discover the conceptual areas which people were using to order their experiences.<sup>1</sup> Some questions were taken from other studies and others were original to define several dimensions of each of the four conceptual areas. The final questions used in our study were pretested and utilized in three different Wyoming surveys before being used in the four monitored counties.

The first conceptual area, desirability of economic development, addresses the question of the benefits and costs of large-scale developments such as power plants. The questions in this area relate to changes in economic activity and to availability of community services. The second area, effect on the community, was designed to determine whether or not respondents thought their community would be improved by development activities. Questions in this area address changes in personal interaction,

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<sup>1</sup>See "Social Impact in Campbell County, Wyoming," by Audie Blevins, James G. Thompson and Carl Ellis; "Social Impact Assessment of the Laramie River Station," by James G. Thompson and Audie Blevins.

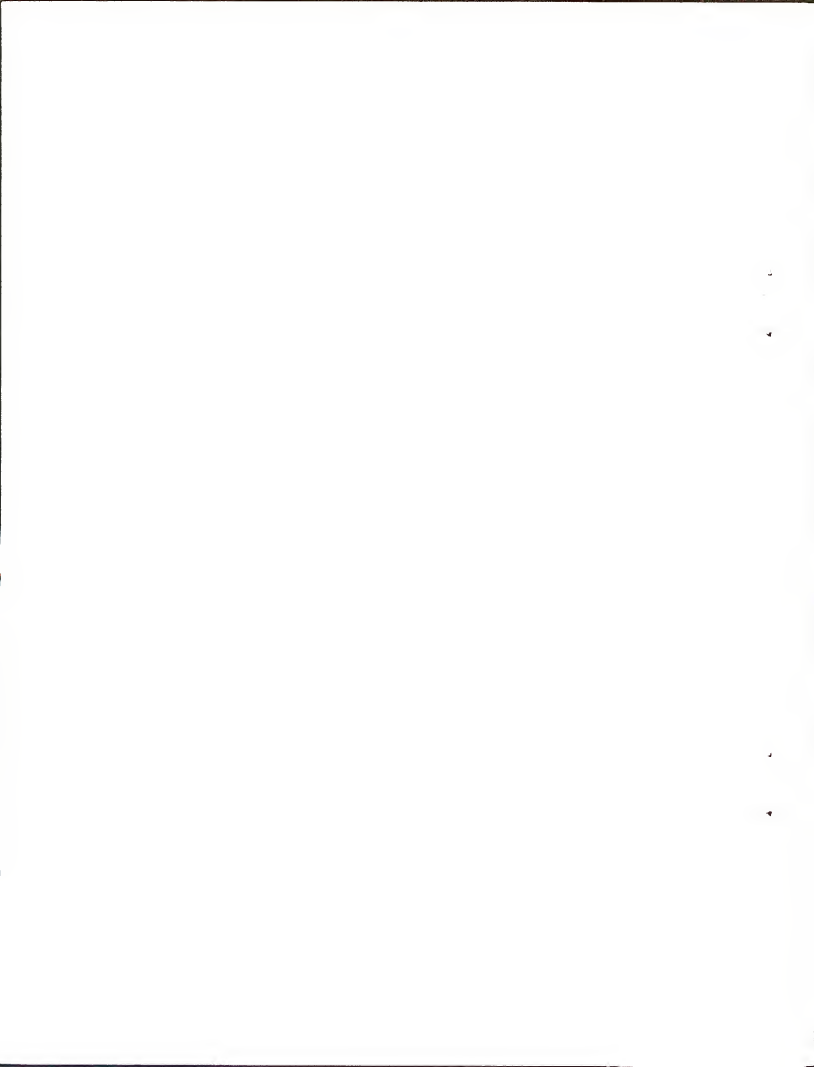
recreation and crime. The third conceptual area concerns the effect of development on the environment, addressing questions on land use from both economic and pollution perspectives. The fourth area, community cohesiveness, relates to community interaction. Attitudes about interaction of community social groups, merchants and customers, and individuals are assessed.

We hypothesized specific temporal changes in attitudes and beliefs for each conceptual area in the four study counties. Based on the previous studies, we believed that attitudes/beliefs about the desirability of development, effect on the community, and effect of development on the environment would all become less favorable in test counties than in control counties as development progressed. For the fourth area, community cohesiveness, we believed the direction of attitude/belief change will be determined by how each community reacts to development. Faced with change, some communities will unite to prepare for the change and cohesiveness will increase. In other communities, the spectre of change will divide groups and cohesiveness will decrease. We think the prior history of each community is the determining factor in how its people react to change. Consequently, we do not have constant expectations about how attitudes/beliefs toward community cohesiveness will change.

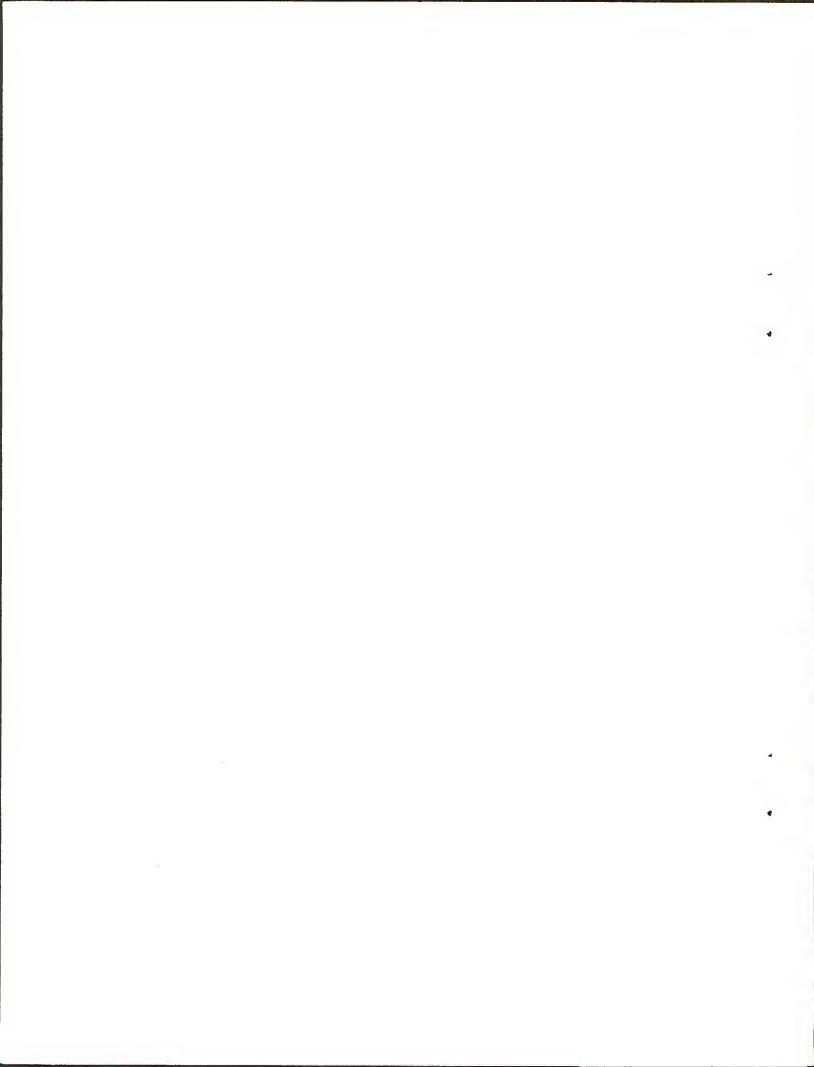
In the final report for this project, attitudinal data will be statistically analyzed to establish data characteristics such as degree of association, reliability and validity. Also, attitudinal responses will be combined into indices or scales corresponding to the four conceptual areas to simplify comparison between counties.

#### 10.6.2 Findings

Responses to questions concerning attitudes toward development and desire for economic growth reveal two significant patterns. First, responses from the four counties are similar, which was expected because of the similarity of the counties prior to development. Although the distributions of responses to the questions reveal some slight differences in attitudes among the residents of the four counties, no statistical analysis was made to determine the significance of the differences. Second, the variation that does exist in attitudes/beliefs follows the predicted pattern for the first two conceptual areas, desirability of economic development and effect on the community. The response pattern however, was mixed to the third conceptual area, effect on the physical environment. In the fourth conceptual area, community cohesion, the impact counties appear to have slightly less cohesion. The concept of cohesion is difficult, though, and we are reluctant to speculate what the differences may mean. Further interpretation of the attitudinal data is not offered at this time because the data need to be indexed, subjected to further testing and analyzed in the context of other, more structural, community data first.



APPENDIX A  
SUMMARY OF SELECTED  
SOCIOECONOMIC IMPACT STUDIES



## APPENDIX A

### SUMMARY OF SELECTED SOCIOECONOMIC IMPACT STUDIES

Economic and Social Impacts of Coal Development in the 1970's for Mercer County, North Dakota. Prepared for the Old West Regional Commission by Thomas E. Carroll Associates, 1974.

Significant social and economic impacts are expected in Mercer County, North Dakota as a result of lignite mining and processing. The primary emphasis of this report is on measuring the financial impact on public sector institutions caused by rapid population growth. Measurement depends upon projecting public service costs and government revenues over the future when impact is likely.

Using multipliers for the Mercer County area, anticipated changes in primary employment due to lignite development were converted into secondary employment and population increases. The additional population, expected to enter the county, was distributed with the use of a gravity model where place of residence was a function of community size and distance to work. When the new population had been spatially allocated, revenues for each jurisdiction were estimated. Expenditures for maintaining public services were found by multiplying per capita costs in towns and counties of similar size by projected populations in Mercer County.

The anticipated doubling of population in the county during the construction period will create problems for most levels of county government as costs are projected to exceed revenues. When deficits

occur, the jurisdictions involved will find it necessary to cut spending which will reduce the quality of services they provide. As the population declines to include only the permanent work force, governmental units can be expected to experience surplus revenues.



Huntsville-Langdon Impact Study. United States Army Safeguard System Command, Huntsville, Alabama.

With the construction of an ABM base in the Langdon, ND area, between 1970 and 1973, population increased from 2,182 to 3,957 (81 percent). A household survey of local residents during June 1974 permitted demographic and attitudinal profiles of the population to be developed. The survey was supplemented by interviews with officials and community leaders.

With the increase in area population, total regional income and school enrollments increased, although the latter rose less than originally anticipated. About 70 percent of the construction workers moved to the Langdon area; 30 percent were local. As population grew, the number of business firms in the area increased and two new banks were established. While the study made no attempt to measure price changes, 83 percent of the respondents felt that rents had increased with development and 70 percent believed inflation was more rapid in the local area than in the general economy. Finally, those surveyed indicated that newcomers had been accepted by the community with relative ease.

Roger L. Hayen and Gary L. Watts, A Description of Potential Socio-economic Impacts from Energy-Related Developments on Campbell County, Wyoming. Laramie, Wyoming: Resource Management Systems, 1975.

With the massive strip mining operations planned for the Powder River Basin, Campbell County will experience substantial social and economic changes in the future. To gauge the economic impacts, this study estimates the demands for public services which will accompany population growth, then computes expected costs and revenues.

Projections are derived from an economic base model which translates anticipated employment changes due to coal development into population increases for the area. The multipliers which convert new primary employment into additional residents are calculated from census data with the modification that the multipliers increase in size as development moves from construction to operations. From the current population changes and census figures, county age distribution and school enrollment projections were made. Estimates of costs to maintain public services with the expanded population are derived with the aid of percapita cost estimates from other county studies.

When the expenditures needed to support public services have been estimated, the analysis turns to determining expected tax receipts and the ability of jurisdictions within the county to obtain needed financing. The conclusion was reached that Campbell County and its school district will experience few financial difficulties as a result of anticipated population growth. In contrast, revenues for the city of Gillette are predicted to lag behind expenditure requirements, creating serious problems; e.g., in financing capital outlays for expanded water, sewer and electrical distribution facilities.

Construction Worker Profile. Prepared for the Old West Regional Commission by Mountain West Reserach, Inc., 1975.

To aid Rocky Mountain communities faced with socioeconomic impacts due to energy developments, this study collected and analyzed primary data in communities which have been affected by large-scale construction projects. Door-to-door interviews were conducted with 1,432 households in nine sample communities, two pre-impact, two post-impact and the remainder at construction sites. In addition, 3,168 questionnaires were completed by workers at fourteen construction projects.

According to survey results, 39.9 percent of the construction workers could be classified as local; most nonlocal workers came from within the Rocky Mountain region. The immigration of 100 nonlocal workers to the construction area was found to bring 48.9 spouses and 78.0 children for a total of 227.8 people. Drawing upon responses to the household survey, researchers concluded that newcomers, both due to construction and those attracted to the community for other reasons, were younger than long-time residents and population in the rest of the state and the United States. While construction newcomers had a relatively low level of educational attainment, residents of impacted communities on the whole showed higher attainment in this area than the U.S. population. Median household income in communities with construction workers showed the highest median income, while their labor force participation by spouses was lowest. All residents of impacted communities indicated an unsatisfied demand for single-family housing with the gap largest for construction workers.

Although they expressed dissatisfaction with community services, long-time residents of now-impacted areas did not plan to leave the community. Sixty-seven percent of these people said they were glad the construction project had come. The surveys found that most newcomers relocated for job-associated reasons and that a slight majority had negative feelings about the town in which they lived.

Thomas E. Baldwin, Diana Dixon-Davis, Erik J. Stenehjem and Thomas D. Wolsko, A Socioeconomic Assessment of Energy Development in a Small Rural County: Coal Gasification in Mercer County, North Dakota. Argonne, Illinois: Argonne National Laboratory, Energy and Environmental Systems Division, 1976.

In this study, the economic impact of energy development is assumed to result from the fiscal effects of population growth. When a jurisdiction is fiscally unable to maintain the quality of its public services, residents of the area become dissatisfied, increasing population turnover and intensifying the social impact of change. A community's ability to fund public expenditures depends upon tax receipts which, in turn, are a function of employment and population. At the same time, employment and population help to determine the levels of government spending necessary to maintain the quality of public services.

The analysis of economic fiscal impacts from construction and operation of a coal gasification plant in Mercer County, North Dakota begins with employment projections. These estimates are derived through use of an employment multiplier derived from economic base and central place theory. The model underlying the multiplier assumes that total employment can be expressed as a function of primary employment and that the spatial allocation of population depends upon housing preferences and income levels.

Knowing the size and locational distribution of the population allows researchers to estimate the demand for and costs of providing public services. Comparing costs with anticipated revenues yield net fiscal balance projections, surplus or deficits which reflect the adequacy of public services. For Mercer County, a population increase

of 125 percent was predicted for the construction phase of the gasification plant; during the plant's 25-year operating period, population will remain stable, 50 percent above its present level. Predicted negative net fiscal balances during construction suggest deterioration in the quality of life for Mercer County residents during that time period.

Like the county, the town of Beulah can anticipate negative fiscal balances during the construction period. These negative balances are due to required improvements in city streets and the water system. In contrast, Hazen can expect negative net fiscal balances in twenty-seven of the thirty years of power plant impact. The relatively low valuation of mobile homes will not provide sufficient tax revenue to support the heavy demands on all city services resulting from population growth. In cases where an under provision of services occurs, a decline in the quality of life is likely with the result that some residents may leave the county, perhaps creating additional burdens on those who remain.

The social impacts of energy development derive from sociocultural differences between indigenous and immigrating populations and from changes in the quality of life for residents. A telephone survey was employed to determine certain socioeconomic characteristics of the resident population, including satisfaction with current public services. If significant social differences are found between the present and incoming populations and if the preceeding economic analysis suggests a deterioration in the quality of public services,

conflict can be anticipated in the impacted communities. This makes the overall socioeconomic impact more severe. The analysis of this study predicts conflict between old and new residents as a result of higher incomes, lower ages of newcomers and the inadequacy of public services.

